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Civil Engineering

MILITARY CONSTRUCTION PLANNING AND PROGRAMMING MANUAL

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This manual provides guidance, procedures, and instructions on how to plan military construction projects and develop project documentation for the active component of the Air Force. It also applies to the Air National Guard (ANG) and the US Air Force Reserve. All references to "HQ USAF/ILEC" throughout the manual should be replaced with "HQ USAF/REX" when referring to the US Air Force Reserve and with "NGB/CE" when referring to the Air National Guard. This manual replaces AFR 86-1, *Programming Civil Engineer Resources, Appropriated Fund Resources* and supplements AFI 32-1021, *Planning and Programming of Facility Construction Projects*. This manual implements statutes and DoD directives as outlined in **Attachment 1**.

Chapter 1

INTRODUCTION

1.1. The Goal of This Manual. This manual provides basic guidance on planning and programming military construction projects for the active component of the Air Force (AF). The manual focuses on the preparation of clear, effective, and accurate programming documentation, and it includes numerous sample documents for some common types of facilities for easy reference by the programmer.

1.1.1. Organization of the Manual. This manual is organized into six chapters:

- **Chapter 1, Introduction,** provides a general description of the military construction (MILCON) program.
- **Chapter 2, MILCON Program,** discusses various MILCON programs and provides guidance on the planning, programming, and budgeting of MILCON programs, including their submittal and approval process.
- **Chapter 3, Programming,** Design and Construction (PDC) System, provides guidance on entering a project into the PDC system.
- **Chapter 4, Document Preparation,** provides detailed guidance on the preparation of programming documents for the military construction requirements of the active component of the AF. Emphasis is placed on the preparation of the DD Forms 1391 and 1391c, and the creation of the project cost estimates using AF Form 1178 processor.
- **Chapter 5, Economic Analysis,** explains the purpose of and requirements for an economic analysis for military construction projects.
- **Chapter 6, Special Considerations,** provides information on special programs and topics.

1.2. The Role of Facilities Planners and Programmers. AF facilities planners and programmers determine the facility requirements that are critical for mission accomplishment, and the most effective and economical means of satisfying those requirements. The first three major elements of planning are as follows:

- **Determine the facility requirements needed to accomplish the mission.** This is the key step in the facility planning and programming process. It normally starts with the Air Force Handbook 32-1084, *Air Force Standard Facility Requirements*, which provides the average requirements for a given facility type. From this book value, the programmer makes any adjustments that may be required to determine the true need.
- **Evaluate existing assets and determine the most economical means of satisfying the requirement.** New construction, or even the upgrading of an existing base facility, is not always the most appropriate option. In some instances, an off-base facility that will meet the need may be available for lease or purchase. Ensure maximum use of existing facilities.
- After it is determined that a facility must be provided or upgraded, follow the required programming actions identified in **Chapter 2** of this manual. Develop a strong, fully justified, indisputable case for the programming action. One of the most important aspects of programming is expressing needs in clear terms.

1.3. MILCON Program. The MILCON program provides for major facility construction on Department of Defense (DoD) installations. The AF has its own MILCON program, authorized under 10 U.S.C. 2801. The MILCON program is used to fund new construction or the revitalization of existing facilities and infrastructure normally costing more than $500,000. Most projects costing less than $500,000 are performed with Operation and Maintenance (O&M) funds; however, these projects can also be funded with MILCON funds.

1.3.1. Several other programs are also available for accomplishing specific categories of construction on AF installations, such as the dependent schools programs, the family housing program, the medical MILCON program, etc. These programs have unique programming requirements and are not covered in detail in this manual. However, a brief discussion of each of these programs is provided in **Chapter 2**, and reference is made to the appropriate document that contains programming guidance.

1.3.2. Players Involved in the MILCON Process. Besides the involvement at the installation and major command (MAJCOM) levels, Headquarters, United States Air Force, the Office of the Secretary of the Air Force, the Office of the Secretary of Defense (OSD), and four Congressional committees play an active part in either the submittal or approval process of the MILCON program.

1.3.2.1. Installations. The primary responsibility for programming MILCON projects lies with the installation commanders, who identify, plan, and program facilities to support their assigned missions.

1.3.2.2. Major Commands (MAJCOMs). MAJCOMs are responsible for providing instructions to installation commanders for planning and preparing construction programs. In addition, MAJCOMs:

- Validate facility requirements, ensure maximum use of existing facilities, and demolish excess facilities.
- Review and validate cost estimates.
- Submit programs to the Headquarters, Directorate of Engineering (HQ USAF/ILEC).

1.3.2.3. Headquarters, United States Air Force Civil Engineering (HQ USAF/ILE). The HQ USAF/ILE is responsible for policy development, interpretation, and oversight to ensure compliance and progress toward goals. The Directorate of Engineering (HQ USAF/ILEC) is the lead division in ILE for MILCON programs. The ILE is responsible for:

- Resource advocacy within the Planning, Programming, and Budgeting System (PPBS) process.
- Issuing guidance to the MAJCOMs for submitting their MILCON program.
- Reviewing and validating MAJCOM submittals.
- Issuing Planning Instructions (PI) authorizing the start of project design.
- Issuing Design Instructions (DI) authorizing any cost and/or scope changes for the project.
- Working with other AF offices to determine the proper size and content of the MILCON program.
- Advocating and defending the MILCON program during the OSD and Congressional reviews.

1.3.2.4. Office of the Secretary of the Air Force.

- Deputy Assistant Secretary of the Air Force (Installations) (SAF/MII) is responsible for facility construction planning and programming policy and oversight.
- Deputy Assistant Secretary of the Air Force (Budget) (SAF/FMB) is responsible for budgeting and submitting the Air Force Budget Estimate Submission (BES) to OSD and the Air Force MILCON portion of the President's Budget (PB) to Congress. SAF/FMB is also responsible for distributing funds once MILCON projects are authorized and appropriated by Congress.

1.3.2.5. Congressional Committees. As part of the PB, HQ USAF/ILEC submits an AF BES to Congress (as discussed in **Chapter 2**). The BES is reviewed by the following four Congressional committees:

- House National Security Committee (HNSC).
- Senate Armed Services Committee (SASC).
- House Appropriations Committee (HAC).
- Senate Appropriations Committee (SAC).

1.3.2.5.1. In order for the project to be approved for construction, it must be authorized by the joint conferences of the HNSC and the SASC, and the funds must be appropriated by the joint conferences of the HAC and the SAC.

Chapter 2

MILCON PROGRAM

2.1. Introduction. This chapter provides an overview of various AF MILCON programs. It also provides guidance on the planning, programming, and budgeting of AF MILCON programs, including their submittal and approval process.

2.2. MILCON Project Types. MILCON projects are classified as either regular or out-of-cycle MILCON projects.

2.2.1. Regular MILCON (10 U.S.C. 2801). Regular AF MILCON projects are non-urgent in nature and are programmed as a line item approved by Congress as part of the PB. The programming and approval process for these projects is described in detail later in this chapter.

2.2.2. Out-of-Cycle MILCON. Out-of-cycle MILCON projects are construction projects that are identified and executed in the current year. These projects are urgent in nature and cannot be deferred to the next MILCON cycle. Several special programs are available to carry out out-of-cycle MILCON projects. These are presented in the following sections.

2.2.2.1. Emergency Construction (10 U.S.C. 2803). This program is for construction projects that are deemed by the Secretary of the Air Force to be vital to national security or for the protection of health, safety, or the quality of the environment, and for which the need is so urgent that it cannot wait for inclusion in the next MILCON cycle. Emergency construction projects cost $1.5 million or more. In this program, funding is obtained from MILCON savings, deferrals, or cancellations accounts. MAJCOMs submit project justifications to HQ USAF/ILEC. The submittal includes the DD Forms 1391 and 1391c (refer to **Table 4.5.** for submittal document requirements). HQ USAF/ILEC validates the requirement and submits the project to SAF/MII. SAF/MII notifies the HNSC and the SASC of its intent to carry out a project under the emergency construction program by submitting a written report, which includes a project description and a justification for the emergency requirement, a current cost estimate, and the funding source. SAF/FMB notifies the HAC and the SAC. The HNSC and the SASC may authorize or raise objection within 21 calendar days after the written notification. SAF/MII has the authority to fund these projects, provided no objection is raised by the HNSC or the SASC within the 21-day waiting period. However, it is a DoD policy to obtain approval from the appropriations committees of the HAC and SAC before the project can be carried out. A limit of $30 million per fiscal year on obligations for emergency construction is imposed on SAF/MII.

2.2.2.2. Restoration or Replacement of Damaged or Destroyed Facilities (10 U.S.C. 2854). These are construction projects exceeding $1.5 million in cost that are needed to repair, replace, or restore facilities damaged or destroyed by occurrences such as fire, floods, winds, crashes, explosions, tornadoes, volcanoes, earthquakes, etc. These projects cannot wait for the next MILCON cycle. SAF/MII has the authority to fund these projects, provided the HNSC and the SASC are given a 21-day notification and the appropriations committees approve the reprogramming funds from the savings, deferrals, or cancellations of other MILCON projects. There is no annual dollar limit on this program. 10 U.S.C. 2854 provides authorization only if the damaged or destroyed facility has been in use or was planned for use at the time of the damage or destruction. Restoration or replacement must not provide larger facilities than those damaged or destroyed, unless a larger facility is needed to comply with new design criteria. These projects are not intended to

correct space deficiencies. O&M funds can be used initially by the MAJCOMs to clean up the damage and minimally restore the facility. However, if MILCON funds are subsequently approved for the restoration or replacement of the facility, the O&M funds are not reimbursed.

2.2.2.3. Secretary of Defense (SECDEF) Contingency Construction (10 U.S.C. 2804). This program is similar to the Emergency Construction Program (10 U.S.C. 2803). The funds under this authority are only considered after Emergency Construction funds are depleted. The use of this program is rare. Appropriations are provided to the SECDEF for this authority as a lump-sum line item in the Defense-wide portion of the PB. There is no funding limitation for a single project under this program. The SECDEF notifies the Congressional committees of its intent to carry out a military construction project under this authority. The project may be carried out 21 days after the notification or if the committees approve the project before the end of that period.

2.2.2.4. Construction Authority in the Event of Declaration of War or National Emergency (10 U.S.C. 2808). The SECDEF has the authority to approve these projects. The Air Force may undertake these projects only within the amount of funds appropriated. The SECDEF will provide guidance at the time that this authority is needed.

2.2.2.5. Unspecified Minor Construction Program (P-341) (10 U.S.C. 2805). Minor Construction projects are military construction projects with an estimated funded cost between $500,000 and $1.5 million; however, projects with an estimated funded cost of $1 million to $3 million may be funded under this authority when specifically planned to correct a life, health, or safety deficiency. These projects are funded from MILCON funds in the P-341 account. The P-341 fund was created to provide expeditious funding for project requirements that must be satisfied before the next MILCON cycle in order to support the readiness and sustainability of AF missions, to reduce critical health and safety hazards, or to reduce the high cost of very inefficient current operations. MAJCOMs must ensure that the requirement for the project is unforeseen and urgent and cannot wait for the next MILCON program. Minor Construction projects are authorized by 10 U.S.C. 2805 and DoD Directive 4270.36, *DoD Emergency, Contingency, and Other Unprogrammed Construction*, 16 May 1991. Minor Construction projects costing $500,000 or less or $1 million when specifically planned to correct a life, health, or safety deficiency are authorized to be funded from the O&M appropriation. This limit is statutory and cannot be exceeded. Under no circumstances may cost increases cause a P-341 project to exceed $1.5 million or $3 million when specifically planned to correct a life, health, or safety deficiency. The project submittal and approval processes for Minor Construction projects are the same as for the Emergency Construction Program (refer to **Table 4.5.** for submittal documents requirements). SAF/MII has the authority to approve a P-341 project, provided a 21-day notification is given to the Congressional committees (HNSC, SASC, HAC, and SAC). If no committee raises an objection within 21 days, HQ USAF/ILEC advises the MAJCOM. Cost increases for a P-341 project that exceed 25 percent of the amount notified to Congress must be reapproved by SAF/MII and Congressional renotification must be accomplished before the project can proceed. (See AFI 32-1021, *Planning and Programming of Facility Construction Projects*, for detailed guidance on the Air Force unspecified Minor Construction program.)

2.3. MILCON Authority. As defined by law (10 U.S.C. Chapter 169, Subchapter I), a MILCON project includes the construction, development, conversion, or extension of any kind carried out with respect to a military installation. It includes all construction work necessary to produce a complete and

usable new facility or improvement to an existing facility. As outlined in the Military Construction Authorization Act, the authority to carry out a military construction project includes:

- The authority for surveys and site preparation.
- The acquisition, conversion, rehabilitation, or installation of facilities.
- The acquisition and installation of equipment and appurtenances integral to the project.
- The acquisition and installation of supporting facilities (including utilities) and appurtenances incident to the project.
- The planning, supervision, administration, and overhead incident to the project.
- The architectural and engineering services and construction design.

2.3.1. Types of Work Included in a MILCON Project. In particular, the following associated work is funded with MILCON funds:

- Site preparation costs of installing non-RPIE (Real Property Installed Equipment) in a new facility or in an addition to an existing facility.
- The demolition of a facility that is being replaced by the MILCON project or that is in the way of the MILCON project.
- The required relocation/construction of a facility displaced by the project.
- Fire protection.
- Utility connections associated with the MILCON project.
- All associated base utilities work.
- Contributions to cost for expanding the utility supplier's production facilities.
- Sitework and landscaping.
- RPIE.
- Lease/construction costs of a short-term facility needed to house functions that are displaced during the project.
- Land Acquisition/Permanent Easement. Land acquisition with or without a MILCON facility construction is acquired and programmed as follows:

2.3.1.1. Land acquisition costing $200,000 or more that is not associated with a MILCON project is programmed as a separate MILCON project.

2.3.1.2. Land acquisition costing less than $200,000 that is not associated with a MILCON project is funded with O&M funds.

2.3.1.3. Land acquisition that is associated with facility construction is programmed as a separate MILCON project if land costs are more than 30 percent of the total project cost (land plus facility construction).

2.3.1.4. If the land costs are less than 30 percent of the total project cost (land plus facility construction) then the land cost is included in the total project cost and the project includes "with land acquisition" in the project title.

- Operation and maintenance manuals for complex facilities.

- The cost of complying with environmental regulations (e.g., asbestos removal, project mitigation, etc.).
- Prewiring (Reference ETL 87-9).

2.3.1.5. Intra-building communication wiring/ducts, modular jacks/outlets and communication distribution frames for single-line administrative telephones and office automation equipment.

2.3.1.6. Intra-building communication wiring/ducts for the fire alarm system, from the main communications distribution frame to the alarm system control panel.

2.3.1.7. Intra-building commication wiring/ducts for energy management and control system (EMCS), from the main communication distribution frame to the EMCS data termination cabinet.

2.3.1.8. Intra-building communication cabling/ducts for local area networks, non-administrative telephones, video, teleconferencing, cable television, alarms other than fire, and non-standard office automation equipment.

2.3.1.9. Exterior duct systems from the communication equipment room to the base dial central office for communications/computer systems.

2.3.1.10. Intra-building wiring for computer terminals remote to a central computer system.

2.3.2. The following types of work that are associated with a MILCON project are not funded by MILCON funds.

- Telephone instruments.
- Furniture (including pre-wired workstations).
- Non-RPIE equipment.

2.4. The Air Force MILCON Process. The MILCON process is a continuous cycle, involving several key actions at the installation, the MAJCOM, and the Air Staff levels to bring the Air Force construction program to life.

2.4.1. Installation Actions. Installation commanders, together with the MAJCOM, identify the facility requirements that are needed for mission support and determine how the requirements can best be met. Existing facilities are evaluated to see if a requirement can be satisfied with existing assets. If it is found that a requirement cannot be met with an existing asset, various options (such as Status Quo, new construction, lease, etc.) are identified. The installation Financial Management (FM), working with the Base Civil Engineer (BCE), prepares an economic analysis (EA) to determine the most cost-effective solution to fulfill the requirement. If it is determined that new construction is needed to satisfy the facility requirement, a series of planning actions must be accomplished to ensure that the project is in compliance with various environmental laws and regulations, and that all user requirements are considered before the project is costed and programmed. A Certificate of Compliance for Critical Planning Actions is prepared to demonstrate that these required actions have been accomplished, are underway, or will take place (see **Figure 4.19.**). Detailed guidance on the preparation of the Certificate of Compliance for Critical Planning Actions is provided in **Chapter 4**, paragraph 4.8. The Certificate of Compliance for Critical Planning Actions documents that the following major actions have been completed:

- An environmental survey is conducted prior to the site selection to determine the environmental, and health- and safety-related impacts, if any, of the proposed construction. In particular,

surveys are conducted for wetlands; floodplains; coastal barrier resources; threatened and endangered species; cultural resources; potentially regulated substances, such as asbestos, lead, radon etc.; solid and hazardous substances; and other contaminants.

- The Base Comprehensive Plan (BCP) (for on-base projects) and other Real Property Master Plans are consulted for siting and style.
- A preliminary project justification is drafted.
- Site approval is sought to ensure that the project is in compliance with the land planning principles.

2.4.1.1. The following additional planning actions should also be completed:

- Ensure each project is planned as a complete and usable facility.
- Identify all site preparation requirements, including excavation, filling, landscaping, utility upgrades and connections, road upgrades, installed equipment, and related real property requirements.
- Seek approval from the MAJCOM to program the requirement in a specific year.
- Prepare each project's programming documentation (as shown in **Figure 2.1.**).
- Enter the project in the PDC system (as outlined in **Chapter 3** of this manual), and submit it to the MAJCOM.

2.4.2. MAJCOM Actions. MAJCOMs review the project requirements submitted by the installations and evaluate and prioritize projects based on the following major categories of MILCON investment:

- Current Mission (CM): Projects that support the current mission of the installation. This category includes repairs to and replacement of facilities identified in the Commander's Facility Assessment (CFA) as being unsatisfactory and providing minimal mission support. Environmental projects required to achieve compliance with federal, state, regional or local environmental laws and regulations (e.g., wastewater treatment and disposal facilities, fire training facilities, underground storage tank replacements and upgrades, etc.) are also included in this category. Both environmental and CFA projects are classified as Level I or Level II, based on the urgency of the project.
- New Mission (NM): Projects that support new missions and force structure realignments. For example, facilities that support the deployment and beddown of new weapon systems; new or additional aircraft; or new equipment, such as radar, computer systems, and communications. These projects are validated by the Program Element Monitor (PEM) for the system.

After projects are validated, the MAJCOM prepares an integrated priority list and submits a command program to HQ USAF/ILEC in accordance with guidance provided in the annual call letter. MAJCOMs also notify installations of the command program.

2.4.3. Air Staff and OSD Actions. HQ USAF/ILEC, in conjunction with other HQ USAF functional offices, reviews project requirements in detail and validates the needs, engineering feasibility, economic benefits, compliance with Air Force objectives, and project costs. In accordance with current corporate Air Force objectives and guidance, the validated projects are prioritized and an integrated Air Force list is developed. Based on the total funding committed to MILCON in the Program Objective Memorandum (POM), the prioritized list is formulated into the MILCON portion of the Air Force

BES. (In addition, HQ USAF/ILEC notifies the MAJCOMs and authorizes the initiation of the design of validated projects. Congressional notification per 10 U.S.C. 2807 may be required prior to award of an Architect-Engineer (A-E) contract.) The MILCON BES submittal to OSD consists of the front pages of the DD Forms 1391 for all projects included in the program. The following actions take place after the BES has been submitted:

- OSD reviews each project in detail to see if the documentation is complete and that projects are well justified and in compliance with the latest OSD planning and programming guidance. OSD then issues draft Program Budget Decisions (PBDs) that transmit their proposed actions (delete, reprice, defer to a future year) on certain projects.
- After receipt of the draft PBD, the Air Force has an opportunity to appeal the proposed action by filing a written reclama. OSD actions on these reclamas (along with high-level negotiations) determine the final size and content of the MILCON program.
- OSD submits the adjusted BES to the President through the Office of Management and Budget (OMB). After receiving the approval of OMB and the President, the PB is submitted to Congress.
- Congressional committees responsible for authorization and appropriation of MILCON requirements hold hearings attended by witnesses from each service. These hearings, along with detailed reviews of the MILCON requests, result in a report detailing the committee's recommendations. Committee differences are resolved in conference, and legislation is drafted that authorizes and appropriates the MILCON program in line-item detail.
- In addition to providing approval, disapproval, and revisions to the individual projects contained in the Air Force MILCON budget request, Congress normally adds projects to the program. These added projects, also line-item specific, become part of the authorized and appropriated MILCON program for the fiscal year. To help ensure that the projects added by Congress are valid requirements, the OSD Comptroller requires each service to prepare a project listing for all the Future Year Defense Plan (FYDP) years. Congress is encouraged to not add any projects that are not included on the FYDP list, which is updated each year and submitted to OSD along with the BES.

2.4.4. Milestones of Typical Submissions. The Air Force submits a biennial (2 fiscal years) budget (which includes MILCON) to OSD and Congress every even-numbered fiscal year. OSD reviews both years in detail and issues decisions on each. However, Congress does not review the second year's program, and it is resubmitted by the Air Force to OSD the next year as an amended program. After OSD reviews and approves the amended program, it is submitted to Congress for its review. The following section presents the key milestones of a typical submittal of MILCON programming documentation. **Figure 2.2.** presents this information graphically. Note: Fiscal Year (FY) represents the FY for which the MILCON project is programmed; FY-3, FY-2, and FY-1 represent three, two, and one year before the FY, respectively; and FY+1 indicates one year after the FY.

2.4.4.1. FY-3.

- In spring, installations submit the FY and the FY+1 documentation to the MAJCOMs.
- MAJCOMs develop a prioritized list of MILCON requirements for both fiscal years and finalize the project documentation for submittal to Air Staff.

2.4.4.2. FY-2.

- MAJCOMs submit initial documentation to the Air Staff in the autumn. (Normally, final submittal for the FY projects is in November and initial submittal for the FY+1 projects is in December.)
- The Air Staff reviews the submittals and hosts MAJCOM briefings for project validation in the spring.
- After project validation, a prioritized list of Air Force construction projects is developed for each FY through an established corporate review process.
- During the summer, HQ USAF/ILEC conducts an investment budget review with SAF/FMBI. Changes resulting from this review are made to the program, and it is submitted to Air Force senior leadership for final approval. The approved program becomes the MILCON portion of the BES.

2.4.4.3. FY-1.

- The Air Staff submits the BES to OSD during FY-1.
- OSD conducts a detailed review of the BES and issues PBDs, which contain proposed actions on the projects (approval, deferral to a later year, deletion from the program, price adjustment). After Air Force review, final PBDs are issued.
- The Air Force adjusts the biennial program according to directions contained in the final PBDs. The adjusted program becomes the Air Force MILCON portion of the PB, which is forwarded to Congress for review, authorization, and appropriation.

2.4.5. Approval Authority. As described above, the approval authority for regular MILCON projects rests with Congress. Reapproval authority for funded MILCON projects in cases where project scope and/or costs have changed are as follows:

- HQ USAF/ILE has the authority to approve an increase in cost of up to 25 percent or $2 million over the approved amount, whichever is less.
- Congress, through SAF/MII, approves the following:
- Project cost greater than 25 percent or $2 million over the approved amount.
- A reduction of over 25 percent of project scope.
- Normally, MILCON funding authorization lasts 3 years, but reauthorization expires after 1 year.

2.5. Other MILCON Programs. The following sections present a brief overview of other DoD MILCON programs that are not managed by USAF/ILEC, but from which the AF benefits.

2.5.1. Department of Defense Dependents Schools (DoDDS) Construction Program. This program is for the new construction and improvement of existing school facilities that are for use by dependents of service members and that are located on Air Force installations. This program is managed by the field activity of the Office of the Under Secretary of Defense/Personnel and Readiness, located in the Office of the Deputy Assistant Secretary/Personnel Support, Families and Education (DASD/PSF&E). Therefore, interface between the Air Force and Congress on school projects is limited. DoDDS projects are submitted to Congress in the PB as line items in the defense-wide portion of the MILCON request. DoDDS construction projects are governed by the same legislation as regular MILCON projects.

2.5.2. Family Housing (FH) Program. Air Force FH includes all living units built and owned or leased by the US government for the purpose of housing military families. It does not include dormitories, Visiting Officer/Airmen Quarters, Bachelor Officer Quarters, or Noncommissioned Officer Quarters. Family housing may be located on or off the installation. It is the policy of DoD to rely on private community assets as the primary means for housing military families. However, the installation's location or changes in mission may make this option infeasible. Installations establish the requirements for FH through the use of Housing Market Analyses, Housing Requirements Analyses, and the Housing Community Plan. Once the requirement for new or revitalized housing has been determined, the installation can determine the proper programming route. Additional information on family housing programming may be found in the following documents:

- AFI 32-6002, *Family Housing Planning, Programming, Design, and Construction.*
- The Air Force Family Housing Guide for Planning, Programming, Design, and Construction.

2.5.3. Energy Conservation Program. This program funds projects, both MILCON and O&M, that are justified based on their ability to conserve energy. They are funded out of the DoD MILCON budget, and they do not compete for regular MILCON resources allocated in the annual Air Force portion of the PB. All services' requirements for these programs are submitted to the Office of the Assistant Secretary of Defense for Economic Security (OASD/ES), which submits the annual Defense-wide energy program to Congress as part of the PB. Public Law 10 U.S.C. 2865, *Energy Savings at Military Installations,* governs the Energy Conservation Program. Projects proposed for accomplishment are submitted to Congress as part of the annual MILCON program. In general, energy conservation features (insulation, high-efficiency chillers with heat recovery, passive and active solar systems, daylighting, etc.) in any new facility, major modernization, improvement, upgrade, restoration, addition, or modification project must be programmed as an integral part of the line item to the maximum extent possible. If energy conservation is not planned as part of the regular Air Force MILCON project, then there are two funding sources available for energy reduction projects:

- Energy Conservation Investment Program (ECIP).
- Federal Energy Management Program (FEMP).

2.5.3.1. Energy Conservation Investment Program (ECIP). This is a MILCON-funded program for retrofitting existing buildings to make them more energy efficient, while providing substantial savings in utility costs. Projects may be programmed for retrofit to an existing building when no other major modernization, improvement, restoration, maintenance, or repair project is scheduled over the subsequent 3 years (e.g., domestic hot water heat recovery on dormitory air conditioning systems, installing variable air volume fans and motors, constructing a geothermal energy power plant, etc.). This program is centrally managed by SECDEF for all services. The program is submitted to Congress by OSD as a lump-sum amount without base or project identification. The services compete for portions of the lump-sum amount by submitting candidate projects with detailed justifications to OSD. The program is intended to provide projects that reduce energy consumption and utility costs. OSD reviews the projects, determines which are to be funded, and notifies Congress in writing of the projects that they intend to follow. Twenty-one days after Congress has been notified, OSD transfers funds to the service for the accomplishment of the projects. HQ USAF and the Air Force Civil Engineering Support Agency (AFCESA) issue annual guidance letters to the MAJCOMs for implementing the program. AFEPPM 96-4, *Investment Opportunities for Energy and Water Conservation Projects,* requires a life-cycle cost analy-

sis be submitted with all projects to justify the work proposed under this guidance. Only projects that meet the current energy conservation and life-cycle cost analysis criteria should be submitted.

2.5.3.2. Federal Energy Management Program (FEMP). This was an OSD centrally managed O&M-funded program from FY94 to FY96; OSD has decentralized this program for FY97 and FY98. Future out-year funding (FY99 and beyond) will be provided by each service. MAJCOMs must submit projects to HQ AFCESA to compete for FEMP funds according to the annual call letter guidance and AFEPPM 96-4.

2.5.4. Medical MILCON Program. This program is managed by the Office of the Assistant Secretary of Defense for Health Affairs, OASD(HA), and is funded through the DoD MILCON budget, specifically, the Defense Health Program. It is not funded through the Air Force MILCON Budget. The Air Force Medical Support Agency, Health Facilities Division, Programs Branch (HQ USAF/SGSFW) manages Air Force submittals. The Medical MILCON program includes medical and medical support; research and training facility projects required to support the Air Force's medical readiness; peacetime healthcare; and health promotion, fitness, and disease prevention requirements. Projects include life safety/utility upgrades, revitalization of and additions to existing facilities, and new construction. This section applies to all medical and medical-related facilities (category codes 500, 442, 310, and 171); it does not apply to Air National Guard (ANG) medical facilities. OASD(HA) issues an annual call to the military departments for medical MILCON projects. Installations develop MILCON requirements. The Medical Treatment Facility Commander, with assistance from the appropriate Regional Health Facility Office, provides functional inputs to the Civil Engineering Squadron Commander for the development of the DD Form 1391, requirements and management plan, environmental assessment, and other programming documents. Installations forward the completed DD Forms 1391 to the MAJCOM civil engineer and surgeon, who jointly validate and prioritize all projects and submit them to the HQ USAF/SGSFW, with information copies sent to the Air Force Center for Environmental Excellence (HQ AFCEE/CMM) and HQ USAF/ILEC. HQ USAF/SGSFW integrates and prioritizes the MAJCOM projects and forwards them to OASD(HA) through SAF/MII. OASD(HA) in turn integrates the prioritized projects from the services and develops the DoD Medical MILCON Program.

2.5.4.1. Unforeseen or urgent construction projects that should not be delayed for inclusion in the next regular annual MILCON program are Unspecified Minor Construction candidates. Installation and MAJCOM staff will process Medical Unspecified Minor Construction requirements in the same way as Medical MILCON projects. OASD(HA) provides the funds for approved projects through the Defense Health Program. Projects programmed under the Unspecified Minor Construction authority must comply with DoD Instruction 6015.17, *Planning and Acquisition of Military Health Facilities*, 17 March 1983.

2.5.4.2. Additional information on Medical MILCON can be found in the following documents:

- DoD Instruction 6015.17, *Planning and Acquisition of Military Health Facilities*.
- Military Handbook 1191, *Department of Defense Medical and Dental Treatment Facilities Design and Construction Criteria*.

2.5.5. Liquid Fuel Facilities. All Defense Services' liquid fuel facilities MILCON requirements are managed by the Defense Logistics Agency (DLA) through the Defense Fuels Supply Center (DFSC). The liquid fuel projects are funded through the DoD MILCON budget, specifically, the DLA program, as opposed to the Air Force MILCON program. Prior to FY 94, these requirements were part

of the regular Air Force MILCON program. MAJCOMs must submit MILCON fuel facilities projects to the DFSC with required documentation according to 30 AM 4270.1, *DLA Facilities Projects Manual.* In addition, information copies are sent to HQ USAF/ILEC/ILEV.

2.5.6. Defense Access Roads (DAR). This program is managed by the Military Traffic Management Command (MTMC), US Army. Funding for this program is included in the Military Construction Authorization and Appropriation Acts. Funds appropriated under this authority are transferred to the Federal Highway Administration for project execution. Funding through this program helps DoD pay for public highway improvements that serve defense installations. For a highway to be eligible for this program, it must be certified as important to the national defense, and the need for the improvement must be the result of sudden or unusual defense-related impacts. This program is authorized by 23 U.S.C. 210, Defense Access Roads, and is implemented by Army Regulation 55-80, Highways for National Defense, 15 December 1982. Before requesting funding through this program, the installation will first request local authorities having jurisdiction over the road to fund and accomplish the work. Once it is determined that the local authorities will not fund the project, installations will submit an Access Roads Needs Report, RCS: MTMC-75, through the MAJCOM to HQ USAF/ILEC, according to Army Regulation 55-80. A preliminary copy of the DD Form 1391 should also be included with the Access Roads Needs Report. All access road projects should be included in one Access Roads Needs Report and DD Form 1391. When an access road project is directly related to a proposed construction project in the installation's program, the base notes this fact in Block 11 of the construction project's DD Form 1391. HQ USAF/ILEC will send the report to MTMC for validation. MTMC validation is required before the project can be included in the MILCON submittal. Upon validation, the MAJCOM must include the project in the command MILCON submittal within its total obligation authority. The use of this program is rare.

2.5.7. Productivity Investment Fund (PIF). Air Force total obligation authority allocated for the Air Force PIF program may be used for funding MILCON projects that result in quantifiable cost savings or cost avoidance in O&M and manpower. Projects typically must have a payback period of less than 2 years. It is prohibited to include the same project in both the regular MILCON and PIF programs.

2.5.8. Host Nation Funded Construction Program (HNFCP). These are construction programs funded by host nations for facility improvement, new construction, or replacement projects on US bases overseas. In Korea, the programs are called the Combined Defense Improvement Projects (CDIP) Program and the Republic of Korea Funded Construction (ROKFC) Program. In Japan, the program is called the Japanese Facility Improvement Program (JFIP). DoD Directive 4270.34, *Host Nation Funded Construction Programs (HNFCP)*, 19 October 1982, implements the program. It is DoD policy to actively seek host nation support for DoD construction requirements in the Pacific before MILCON funds are requested. MILCON funds are only acceptable if host nation funding is denied or will not result in the timely satisfaction of US requirements. These projects must be certified for MILCON.

2.5.8.1. Combined Defense Improvement Projects (CDIP) Program. The CDIP Program is governed by the Republic of Korea (ROK) Ministry of National Defense (MND) Directive No. 297, *Policies and Regulations on the Execution of CDIP Projects*, 22 March 1988. Article 5 of this directive addresses the criteria for CDIP projects, which require that projects approved for funding by CDIP must improve/enhance combined ROK-US warfighting capabilities.

2.5.8.2. Republic of Korea Funded Construction (ROKFC) Program. The ROK government provides funds to US Forces Korea (USFK) annually to construct facilities in support of USFK. USFK receives project nominations from the service components, develops USFK prioritization, receives US Commander in Chief for the Pacific Command (USCINCPAC) and OSD approval, and consults with the ROK government for execution. There are no warfighting limitations placed on this program, and funding can be used to build quality-of-life facilities. Because the CDIP Program has significant limitations, the goal is to provide as much funding as possible into the ROKFC Program.

2.5.8.3. Korea Host Nation Funded Construction (HNFC) Guidance. The following guidance applies to COMUSKOREA and Service components and shall be used for the preparation of the HNFC programs in Korea:

- Maintaining a balanced HNFC that supports USCINCPAC priorities as outlined in the Integrated Priority List and the Master Requirements System is the bottom-line goal. The objective is to include projects that enhance operational readiness, sustainability, inter-operability, mobility, modernization, training, environmental compliance, quality of life, and facilities readiness.
- COMUSKOREA will develop and coordinate the HNFC program with Service components and DoD activities in Korea. COMUSKOREA will forward the current program proposal to USCINCPAC 60 calendar days prior to the desired submittal date to the ROK government. USCINCPAC will approve and obtain required OSD approval of the program proposal.
- NAF projects may be programmed in the ROKFC Program. However, no direct mission support projects will be deferred for a NAF project.

2.5.8.4. Japanese Facility Improvement Program (JFIP) Guidance. The following guidance applies to COMUSJAPAN and Service components and shall be used for the preparation of the JFIP.

- Maintaining a balanced JFIP that supports USCINCPAC priorities as outlined in the Integrated Priority List and the Master Requirements System is the bottom-line goal. The objective is to include projects that enhance operational readiness, sustainability, inter-operability, mobility, modernization, training, environmental compliance, quality of life, and facilities readiness.
- The JFIP should be developed according to the guidance published by USCINCPAC for the Calendar Year (CY) +2 program each year, which includes general funding goals and decisions on nominations for USCINCPAC initiatives.
- COMUSJAPAN develops and coordinates the JFIP with Service components and DoD activities in Japan and forwards the CY+1 program proposal to USCINCPAC by 20 January annually. USCINCPAC will approve and obtain OSD approval of this program proposal by 25 March annually.
- Consistent with OSD guidance on the inclusion of morale, welfare, and recreation (MWR) type projects in the JFIP, COMUSJAPAN is assigned the responsibility and authority for determining which MWR projects can be funded. For those revenue-generating Nonappropriated Fund (NAF) activities, US NAF funds could be used to relieve the demand.

2.5.8.5. Responsibility. Authority and responsibility for management of HNFC are accomplished by each installation commander to allow for regional control and compatibility with host nation requirements and constraints. The installation commander is designated as the program manager and single point of contact with the host government to negotiate and propose US Services construction programs based on the USCINCPAC guidance and Service component priorities. USCINCPAC retains the overall responsibility for the coordination and guidance of HNFC. The Regional DoD construction agent is responsible for providing engineering services and construction management support for HNFC projects.

2.5.8.6. HNFCP Criteria. Host nation funded projects normally will be designed and constructed to meet MILCON program criteria and standards for reliability, maintainability, functionality, personnel health, safety, and the environment. Plans for host nation funded fixed or movable ammunition storage facilities will be submitted to the Defense Explosive Safety Board for review in accordance with DOD Directive 6055.9, *DoD Explosives Safety Board (DDESB) and DoD Component Explosives Safety Responsibilities* and AFMAN 91-201, *Explosive Safety Standards.*

2.5.8.7. Developing and Submitting Host Nation Funded Five-Year Construction Programs.

- Bases in Japan and Korea determine facility deficiencies and submit a 5-year HNFCP construction program to the 5th Air Force (Japan) or 314th Air Division (Korea). The program should include each MILCON project beyond the current year that has not been considered for host nation construction.
- The 5th Air Force and 314th Air Division review, integrate, and determine the priority of the projects submitted by the bases. The integrated list is then forwarded to HQ Pacific Air Forces (PACAF) for approval and is returned to the 5th Air Force and 314th Air Division before the senior In-Country Component Commander's submission to US Forces, Japan and Korea. A copy of the HQ PACAF-approved program will be sent to HQ USAF/ILEC.
- US Forces in Japan and Korea then submit the HNFCP to USCINCPAC who submits it to OSD in the February time period.
- OSD will resolve differences and advise USCINCPAC by mid-March.
- USCINCPAC will then advise USFK and Japan of the 5-year approved HNFCP.
- 314th Air Division and 5th Air Force then transmit the HNFCP to HQ PACAF, which reviews and revises the HNFCP if needed and submits the 5-year HNFCP and 5-year regular MILCON program for Japan and Korea to HQ USAF/ILEC. This is to occur in the April time period.
- The HQ USAF Facilities Requirements Committee then will review the HNFCP and regular HQ PACAF MILCON programs and submit them to OSD as part of the POM, in accordance with POM instructions issued by OSD.
- OSD will advise HQ USAF of the results of the POM review, typically in July or August. HQ USAF will advise HQ PACAF of OSD's action, who in turn, will advise 5th Air Force, 314th Air Division, and USCINCPAC in time to incorporate the OSD actions into the February submittal of the next USCINCPAC HNFCP to OSD.

2.5.9. NATO Security Investment Program. The NATO Security Investment Program, formerly known as the Infrastructure Program, funds military construction at installations in NATO member countries to support the military mission of the alliance. Funding for this program is provided by contributions from each member nation. Each country contributes a set percentage of the total requirement each year, according to a previously established formula. The US contribution of the total NATO construction program is 28 percent. The NATO Security Investment Program is managed by OASD/ES. Funding for NATO is included as a line item in the DoD MILCON request in the PB. Title 10 U.S.C. 2806, *Contributions for NATO Infrastructure,* governs this program.

2.6. Cost Estimating. Cost estimating is an integral part of programming MILCON projects. As seen above, POM, MILCON programs, and BESs are developed based on the project cost estimates. Also, project cost estimates are required to compare alternatives in the EA process. Hence, it is imperative that project cost estimates are prepared accurately. Equally important is the need for accurate and complete cost estimating capabilities. The Air Force Pricing Guide, available in the PDC system, and the parametric cost estimating systems, such as the Parametric Cost Engineering System (PACES) and Remedial Action Cost Engineering and Requirements (RACER) system, allow the user to quickly and accurately compile costs. The use of the Air Force Pricing Guide is presented in **Chapter 4**.

2.6.1. PACES. PACES is a PC-based parametric cost certification/estimating system that combines the features of the Microcomputer-Aided Cost Engineering System (M-CACES) and the US Army Corps of Engineers Unit Price Book (UPB) with the parametric estimating capabilities of the Air Force Construction Cost Management Analysis System (CCMAS). PACES offers a comprehensive way to evaluate and manage construction costs during the life-cycle of a project, from the earliest design stage to the final design stage. The parametric capability of PACES takes advantage of previously designed facilities with similar parameters but uses current cost data. PACES also has 77 parametric building models grouped into 12 building categories: Administrative, Communications, Dining, Dormitories, Hangars, Maintenance, Medical, Storage, Child Care Centers, Family Housing, Temporary Lodging, and Scholastics. In addition, there are over 400 different functional space areas that can be added to, or deleted from, any of the building types. PACES uses a totally integrated system of engineering parameters, construction criteria, and methodologies. PACES has Supporting Facilities Models that are used for estimating site work/civil construction. The Supporting Facilities Models are grouped into 4 categories and have 36 models, e.g., Clearing and Grubbing, Sanitary Sewer Systems, Water Supply and Distribution, Electrical Substations, Area and Security Lighting, and Sensor Systems.

2.6.2. RACER. RACER is a PC-based environmental cost estimating system that estimates costs for all phases of remediation, Remedial Investigation/Feasibility Studies (RI/FS), Remedial Design, Remedial Action, and related site work and utilities. RACER cost estimates are location-specific and include contractor general conditions, overhead and profit, and escalation. RACER cost models are based on generic engineering solutions for environmental projects, technologies, and processes. RACER uses the UPB, supplemental data bases, and project experience to derive costs.

Figure 2.1. Documentation Development Process.

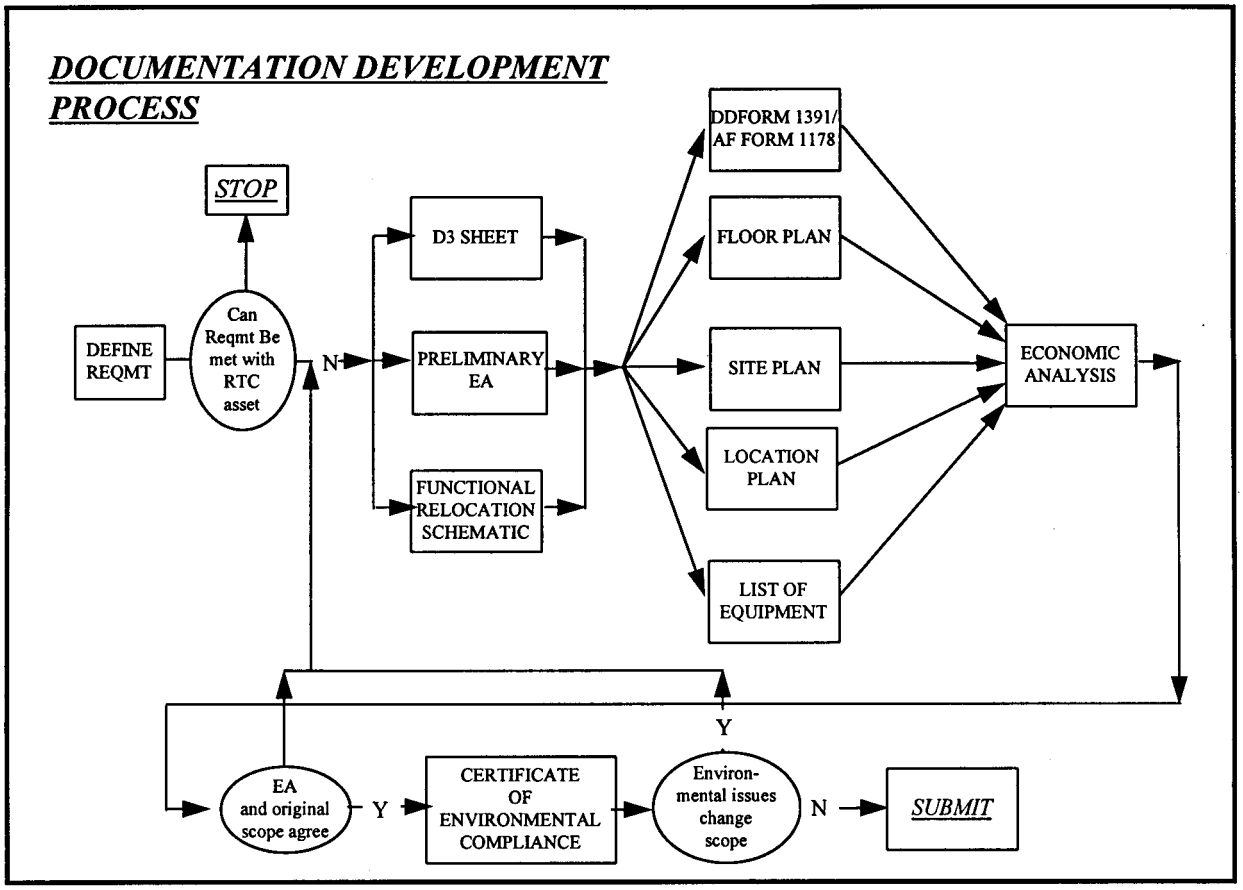
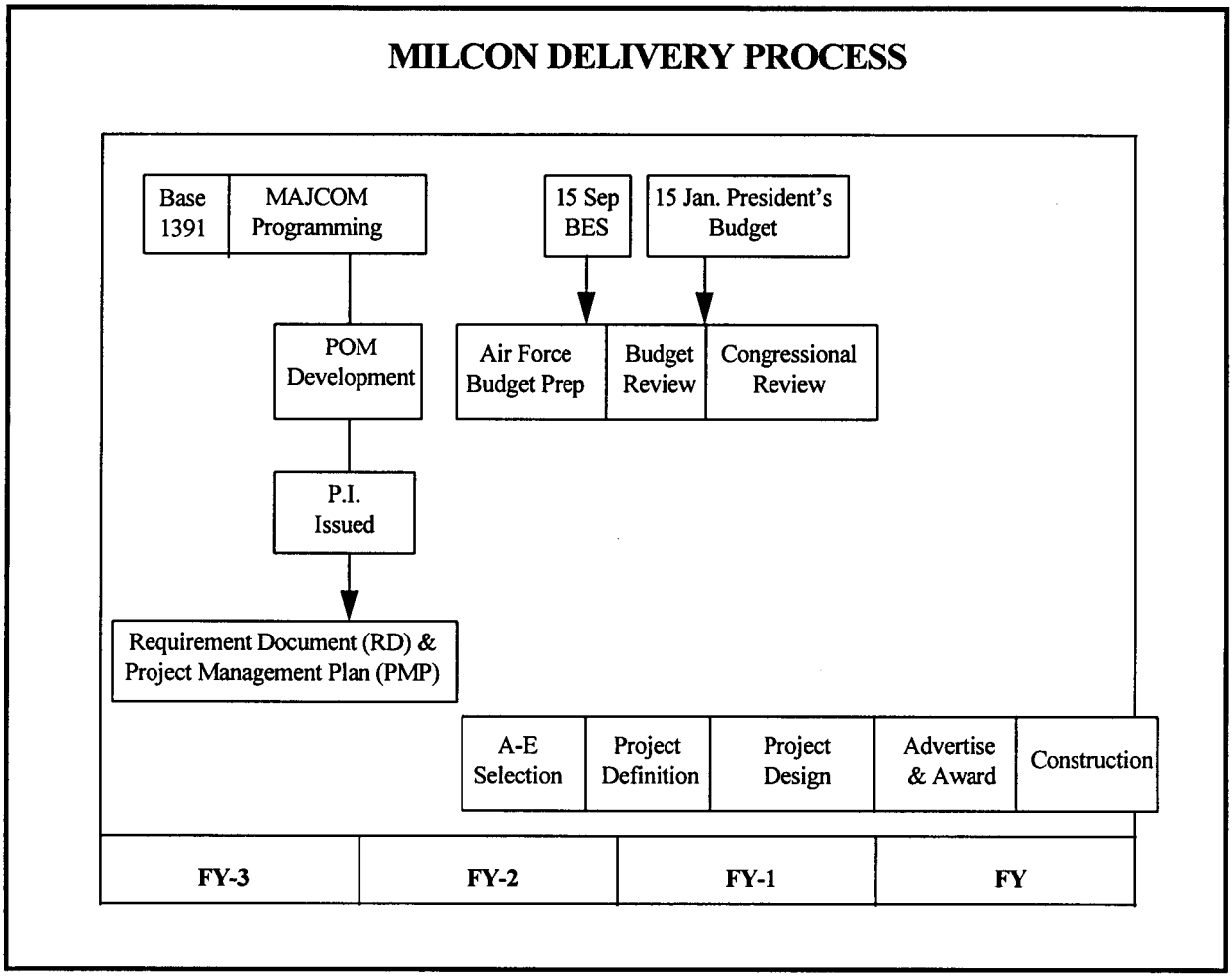


Figure 2.2. MILCON Delivery Process.



Chapter 3

PROGRAMMING, DESIGN, AND CONSTRUCTION SYSTEM

3.1. Introduction. The Programming, Design, and Construction (PDC) computer system is the official vehicle by which all military construction projects are processed for approval. Simply stated, until a project is properly submitted into the PDC system, it will not be approved. Therefore, a proper understanding of the steps required for entering a project into the PDC system is essential. This chapter will provide all the necessary information to "walk" the user (Base Level/MAJCOM/Air Staff) through the steps needed to bring a project to life. This chapter does not apply to the ANG as they do not have a PDC system. The following military construction projects must be entered into the PDC system:

- Active Duty Military Construction.
- Base Closure.
- Energy Conservation Investment Program.
- Unspecified Military Construction.
- Nonappropriated Funds.
- Emergency Construction.

3.2. Creating a Project in the PDC System. For programming purposes, a project is created in the PDC system in three major steps. The first step involves creating a program record in the Programs Initial Input Screen, where the basic project information is entered. The second step consists of creating a project cost estimate using the 1178 processor. Finally, the 1391 processor is used to create the DD Form 1391. Steps two and three are discussed in **Chapter 4** of this manual.

3.3. Creating a Program Record. A program record can be created at all levels of the Air Force (Base, MAJCOM, and Air Staff). However, the PDC system is designed to be run alone at the MAJCOM level and in conjunction with the current version of the Project Contract Management System (PCMS) at the base level. If this is not the case, the data will not be accurate. At the MAJCOM level, the PDC system is entered via a menu choice. At the base level, it is accessed from within the PCMS program via a PF Key.

3.3.1. Base Level. The following steps describe how a project is entered into the PDC system from the PCMS program at the base level. To add a project, enter PCMS (see **Figure 3.1.**).

- Press PF Key 11 to add a project. This takes you into the ADD screen in PCMS (see **Figure 3.2.**).
- Where the screen says "Program Type," type in MCP (default is O&M).
- Add the two-digit program year (for which authorization and appropriation is being sought) after the Installation Code (e.g., for a Pentagon project seeking programming in 1997 enter PAYZ97).
- The project number (the last four digits) after the program year is automatically assigned (e.g., PAYZ970001); however, this number can be changed by the user, if desired.
- Press PF Key 1. This takes you into the PDC Programs Initial Input Screen - Part 1, ZPPRGAC (see **Figure 3.5.**).

- Follow the instructions in paragraph 3.3.3 to create a project record.

NOTE:

Any data element in PCMS that is the same data element in PDC is updated from the PDC record (e.g., type project, program amount). PDC data elements can only be updated in the PDC record.

3.3.2. MAJCOM and Air Staff Level. To add a project in the PDC system, enter the PDC system and the first screen, ZPENTER (written at the lower right corner of the screen), will appear (see **Figure 3.3.**).

- Enter a valid (existing) project number where it says "PDC Project No" on the screen. Note: You cannot add a project without first accessing an existing program record. If you do not recall a valid number, enter your Installation Code (e.g., AJXF for Andrews AFB) and press ENTER for an inexact search. The first project record in the file will appear.
- Press PF Key 6 (Programming) to access screen TINQ#7 (see **Figure 3.4.**).
- Press PF Key 1 (Programs Initial Input) to access screen ZPPRGAC (see **Figure 3.5.**). Follow the instructions in paragraph 3.3.3 to create a program record.
- Press PF Key 9 (Add) when in ZPPRGAC to add a program record.

3.3.3. Programs Initial Input Screen-Part 1. To create a program record in the Programs Initial Input Screen, follow the step-by-step instructions below. Note: Use PF Key 14, Data Dictionary, if you need help with the definition of the data element to be entered. This can be accomplished by placing the cursor directly on the data element you wish to define and hitting PF Key 14.

1. PDC Number: For MAJCOM and Air Staff, add the four-digit installation code followed by the two-digit year in which the project is programmed to be authorized and appropriated, followed by a four-digit numerical sequence (e.g., for a Pentagon project programmed in 1997 and that is the first entry for the fiscal year, enter PAYZ970001). For bases, when you enter the Program Initial Input Screen, you should see the PDC number you created in the PCMS program.

2. Program Type: Enter one of the following program codes:

MCP for Military Construction Program, including P-341.

ECP for Energy Conservation Investment Program.

BCL for Base Closure MCP Program.

NAF for Nonappropriated Fund Program.

3. Fund Type: Enter one of the following three-digit codes:

- for CONUS MCP, ECP, or BCL projects.
- for Overseas MCP, ECP, or BCL projects.
- for MCP P-341 projects.

The following codes apply to NAF projects:

- EXC for AAFES projects.
- COM for DECA projects.
- GTS for MWR Grants.

- LNS for MWR Loans.
- OPM for Open Mess projects.
- TLF for Temporary Lodging Facilities.
- CL6 for Class Six Stores.
- PVT for Private Funds projects.

4. Base: Enter the first eight characters of the base name where the project will be constructed (e.g., enter CHARLEST for Charleston; enter LITTLE*R for Little Rock, where * indicates a blank space).

5. Program FY: Enter all four digits of the fiscal year in which authorization and appropriation for the project are being requested from Congress.

6. MAJCOM-Host: Do not fill in the blanks. This field is programmatically entered; information is pulled from the base file.

7. MAJCOM-Req: Do not fill in the blanks. This field is programmatically entered.

8. Status: A three-digit alpha code, such as AAA, must be entered in this field before a project can be submitted by the base to the MAJCOM. However, once the project is submitted from the base to the MAJCOM or downward submitted by the Major Command, it automatically changes to BSE. When the project is submitted from the Major Command to the Air Staff, the status changes to PRG. Once a design instruction is entered against the project, the status will read DSG. When a project goes into construction, the status will be CNS, and if the project is canceled, the status will be CNX.

9. PE: A Program Element (PE) number is assigned to all items in the Air Force budget to identify the Air Force Program. Enter the program element as X.XX.XX (use decimals). Conventions for using the PE number are as follows:

- If a project directly supports a system or aircraft that has its own PE, use that PE.
- For upgrading, modernizing, and correcting deficiencies that are not directly tied to a separate mission, use the base operating support PE.
- For environmental compliance projects, use the specific environmental compliance PE.
- Ensure that the PE number you use is the same PE number being used by your XP Office.

10. CE/PBD: Enter the Program Budget Decision (PBD) number used by OSD during the MCP review. This is generally based on category codes. Commonly used MILCON PBDs are provided in **Table 3.1.**

11. Short Title: Enter a short description of the project. The short title does not affect the DD Form 1391. Reference the Long Title (step # 33) of Part II for title suggestions.

12. State/Country: Do not fill in the blanks. This field is programmatically entered from the base file.

13. Program Amount: Enter the program amount being requested from Congress for appropriation.

14. Phase Prog Amt: Leave this field blank unless this project is a sub-project of another MILCON project.

15. Unfunded Amt: For NAF or P-341 projects, enter unfunded costs (usually design) in this field.

16. Excluded Amt: For NAF or P-341 projects, enter excluded costs (usually equipment) in this field.

17. Total Proj Amt: This field is automatically calculated. It is the sum of the Program Amount, the Unfunded Amount, and the Excluded Amount.

18. Priorities:

Base: Base priority can be entered in this field by the Base only.

Command: Command priority within PE can be entered in this field by the MAJCOM only.

19. Catcode: Enter the primary category code for the project. A dash must be used between the first three and last three digits of the Catcode (e.g., 100-000). For projects involving two or more category codes, enter the category code having the largest scope. When the Catcode is entered, a long title will automatically be entered by the system (see step #33) on Part II of this screen (see **Figure 3.6.**). A listing of commonly used category codes for military construction, and the Air Staff-preferred descriptions for the Part II long title, are provided in **Table 3.2.** For additional information on category codes, refer to the following:

- Category Code Listing in the Air Force Pricing Guide, which can be accessed by using PF Key 13 on screen ZPENTER (see**Figure 3.3.**).
- Air Force Handbook 32-1084, Air Force Standard Facility Requirements.
- Air Force Civil Engineering Support Agency (AFCESA) Category Code Listing.

20. Scope: Enter the primary scope of the project. This scope is tied to the unit of measure (UM) that is used in the UM field (described in step #21). The scope should be the scope shown on the DD Form 1391. Leave this field blank if the UM is going to be lump sum (LS). For dormitory projects only, the scope should be the number of personnel to be housed (in bed spaces). Note: The scope must be entered in metric units.

21. UM: Enter the primary unit of measure for the project (e.g., SM, LS). This field is tied to the previous field (Scope) and should be the unit of measure shown on the DD Form 1391. Enter "PN" (personnel) in this field for dormitory projects. Note: The unit of measure must be metric.

22. Type Wrk: Enter one of the following codes for the type of work being done on a project:

- NEW for New Construction.
- ADD for Addition.
- ALTR for Alterations.
- ADAL for Addition and Alterations.
- IMP for Improvements.
- RENV for Renovation.
- REP for Repair.

23. Air Staff FY: This is an Air Staff-only data element used for budget drills or tracking purposes.

24. Group: Enter the one-digit appropriate project classification code:

- A for New Mission.
- B for Current Mission.
- C for Planning and Design or Minor Construction.

25. New Mis %: Enter the percentage of the project that is new mission.

26. Cur Mis%: Enter the percentage of the project that is current mission.

27a. CMD Sub-Date: This is the date that the Requiring Command submits a project to the Air Staff or the Air Staff downward transmits a project to the requiring command. This field is entered programmatically.

27b. Base Sub-Date: This is the date that the base submits a project to the Major Command or the Major Command downward transmits a project to a base. This field is entered programmatically.

28. Facility Need Date: Enter the date by year, month, and day when construction must be completed to meet mission requirements (e.g., 970426).

29. Press ENTER to add the program record before proceeding to Part 2. Note: A message at the bottom of the screen will confirm the addition of this project or will prompt for error correction. If any change is made to a data field after ENTER is pressed, you must press ENTER again to save the change.

30. Press PF Key 11 to go to the Programs Initial Input Screen - Part 2, ZPPRGBC (see **Figure 3.6.**).

3.3.4. Program Initial Input Screen-Part 2.

31. COMMAND UPDATE: Until the project is submitted, the PDC system automatically shows under COMMAND UPDATE in Part 2, the FY, the Program Amount, the Scope, and the Status fields that were entered in Part 1. Fields are then opened to the MAJCOM for update and transmittal to the Air Staff.

32. BASE UPDATE: Until the project is submitted, the PDC system automatically shows under BASE UPDATE in Part 2, the FY, the Program Amount, the Scope, and the Status fields that were entered in Part 1. Fields are then opened to the base for update and transmittal to the Air Staff.

33. Long Title: This long title defaults to a generic title when the primary catcode (step #19) is entered in Part 1. This long title will become the project title for the DD Form 1391. This title should be modified in accordance with the following project naming conventions, if necessary. In general, the following conventions will apply:

- Use abbreviations or accepted acronyms only when space is limited.
- Do not use the word “Construct,” and do not state that a project is a Deficiency, Deficiency Replacement, or Replacement.
- Do not identify project phases in the title.
- Do not use building numbers in the title.
- If more than one facility of the same type is included in the project, indicate it by using the plural of the facility name; for example, Aircraft Maintenance Facilities, Dormitories, etc. Do not state the number of facilities in the title.
- Use common terms for facility descriptions; for example, use Dormitories instead of Unaccompanied Officer (or Enlisted Personnel) Housing, Dining Facility instead of Dining Hall, Base Engineer Complex instead of BCE Facility, etc.
- For projects where the major thrust is to correct OSHA hazards, suffix the title with “(OSH).”
- For new mission projects, start the title with the abbreviation or acronym of the name of the mission that the project supports. For example, projects being constructed to support a new mission called “Advanced Tactical Fighter (ATF)” would be: ATF Dormitory, ATF Aircraft Maintenance Unit, etc.

NOTE:

If the Catcode (step #19) is changed on Part I, this long title will again default to the generic title.

34. Replacement: Enter the percentage of the project program amount being used for replacement. This percentage is based on square meters being replaced by this project.

35. Upgrade: Enter the percentage of the project program amount being used for upgrade. This is based on the percentage of upgrade versus replacement and/or deficit square meters, if any.

36. Deficiency: Enter the percentage of the project program amount being used for a deficit. This deficit is based on the total square meters being added to the project.

37. Other Disposals: Enter the amount of square meters being demolished as a result of this project.

38. Number of Bldgs: Enter the number of buildings being demolished as a result of this project.

39: Grade Mix:

- O1-O2: Enter the number of officers in grade levels O1 and O2 for this project.
- O3-O10: Enter the number of officers in grade levels O3 through O10 for this project.
- E1-E4: Enter the number of enlisted personnel in grade levels E1 through E4 for this project.
- E5-E9: Enter the number of enlisted personnel in grade levels E5 through E9 for this project.

NOTE:

Leave this field blank if it is not affected.

40. Maximum Utilization: Enter the maximum number of personnel the dormitory can support (assume the dormitory will house only E1 through E4 personnel).

41. Catcode2: An alternative category code for this project may be entered.

42. Scope2: An alternate scope for this project may be entered. For dormitory projects, this field should be used for the number of square meters. Note: The scope must be entered in metric units.

43. UM2: An alternate unit of measure for this project may be entered. For dormitory projects, this field should be used for square meters (SM). The unit of measure must be in metric units.

44. Prog Description: These three lines may be used for a brief description of the project. It can be updated at any time by the user.

45. Press ENTER to add Part 2 of the program record. This completes the initial addition of a project.

NOTE:

Projects that have not been submitted to the MAJCOM or the Air Staff can be updated at any time.

3.3.5. Submission of Program Record. A program record must be submitted before the DD Form 1391 can be submitted via the PDC system. Note: Ensure there is a three-digit alpha code in the status data field (see figure 3.5) before submittal.

- To submit a project, exit to the previous screen (see **Figure 3.4.**) by pressing PF Key 16.
- Press PF Key 19 (Submittal Process) to access screen ZPSUBAX.

3.3.5.1. For Base Level. See **Figure 3.7.** At the bottom of the screen, enter only the PDC number for the project being submitted and then press ENTER. It is not recommended that you enter Type Program/Status/Prog Yr for selection criteria.

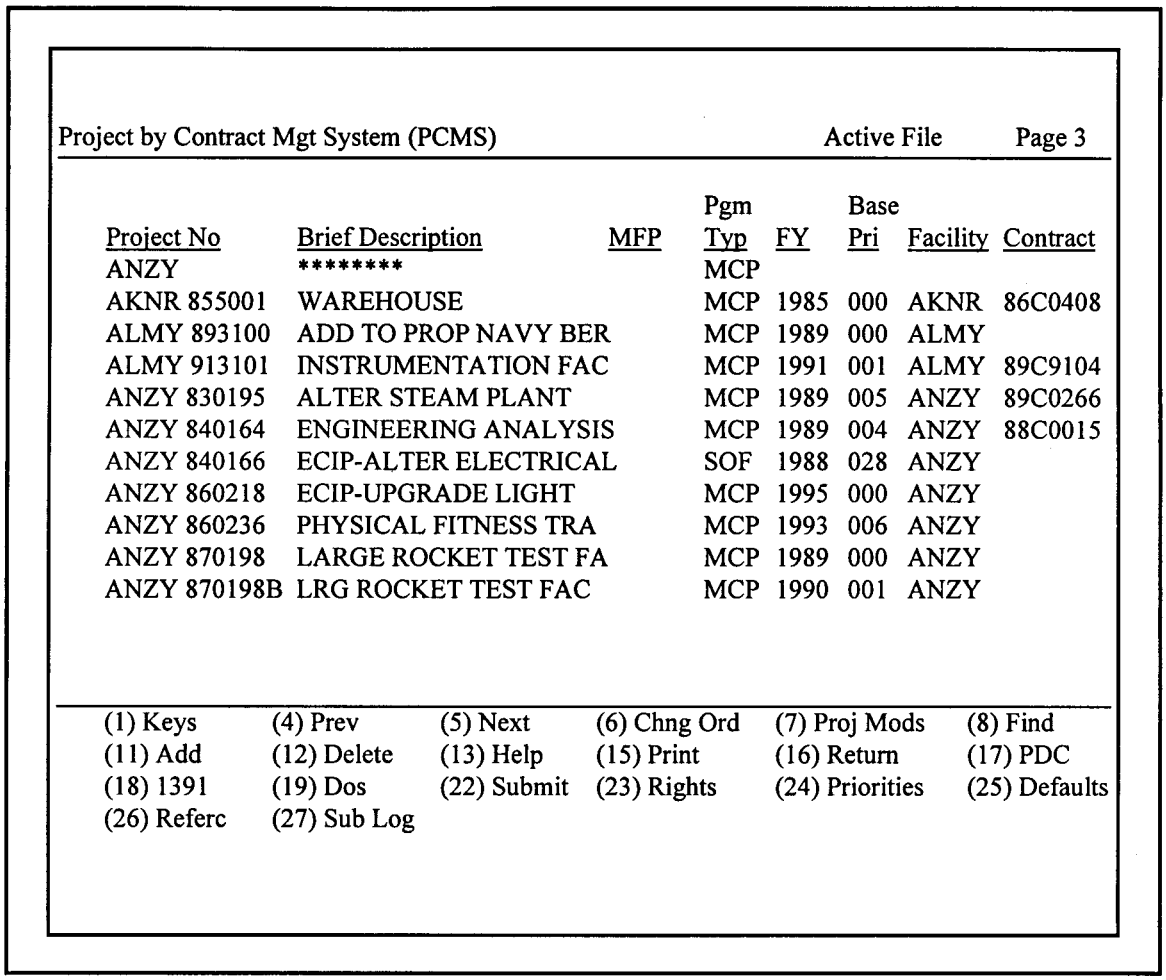
3.3.5.2. For Major Command. See **Figure 3.8.** Place an X after "PRG" for submittal to the Air Staff. If the MAJCOM has created the program record and is directing the project down to the base, also place an X after "BSE." If the submittal is going to the base, enter Y in the "Is submittal to go to BASE" field, and if not, enter N. On the following line, "If BASE = Y," enter the three-character base indicator for that base (e.g., ELM for Elmendorf). Note: To find the base indicator, go back to the Non-Project Information Screen (see **Figure 3.10.**) and press PF Key 1 (Base/US Congressmen Info). Enter the first eight digits of the base name and press ENTER. The base indicator will be shown under Base Ind:

- Enter at the bottom of the screen only the PDC number for the project being submitted and then press ENTER. It is not recommended that you enter Type Program/Status/Prog Yr for selection criteria.

3.3.5.3. For Air Staff. See **Figure 3.9.** The Air Staff uses this submission of the program record for the downward submittal of a project created at the Air Staff to the MAJCOM. Place an X after "PRG." Enter at the bottom of the screen only the PDC number for the project being submitted, and then press ENTER. It is not recommended that you enter Type Program/Status/Prog Yr for selection criteria.

3.3.5.4. The project has now been submitted to the MAJCOM or Air Staff, or from the MAJCOM to the base, if the project is being directed downward. Once the project is submitted, the official record will be programmatically updated at all levels.

Figure 3.1. PCMS Screen.

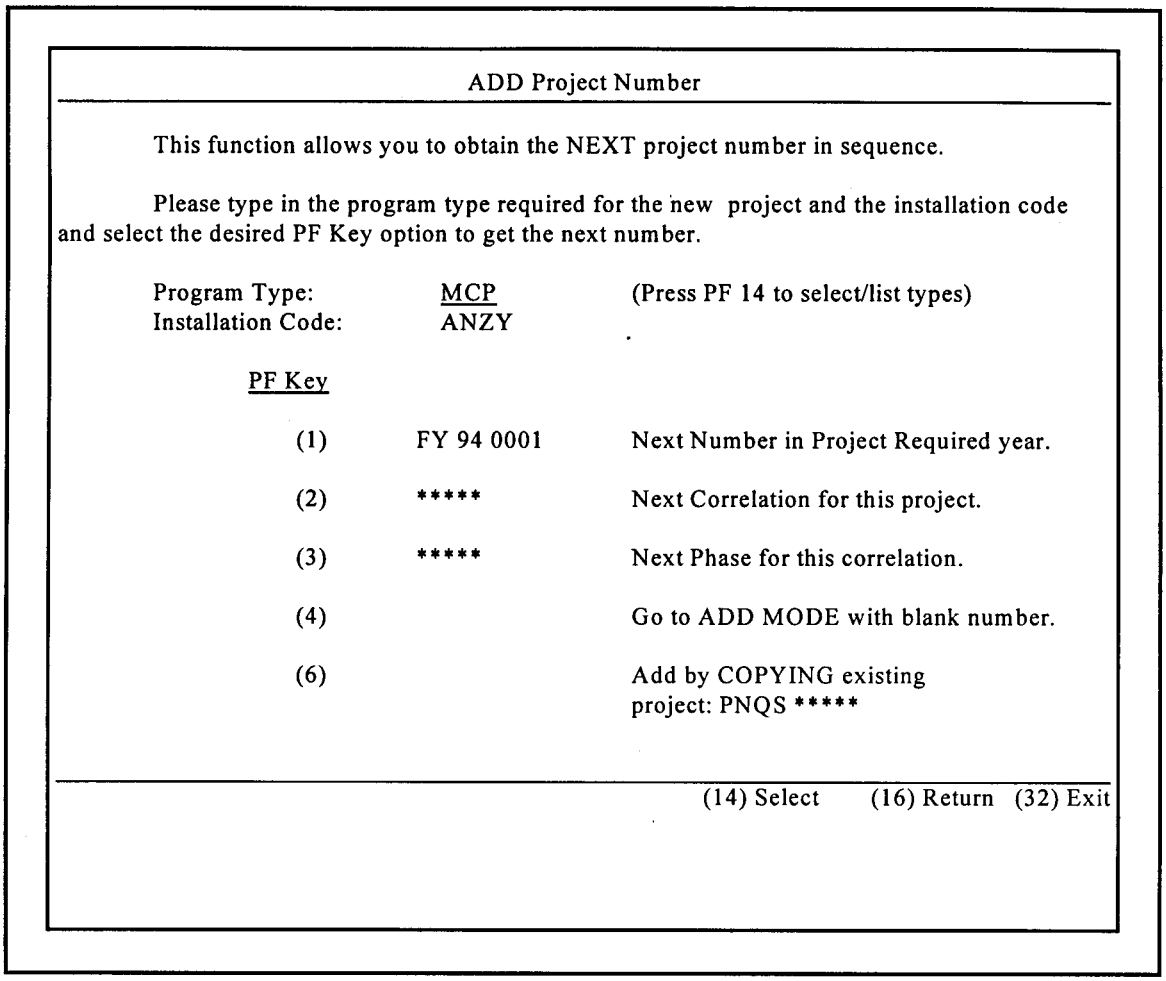


Project by Contract Mgt System (PCMS) Active File Page 3

Project No	Brief Description	MFP	Pgm Typ	FY	Base Pri	Facility	Contract
ANZY	********		MCP				
AKNR 855001	WAREHOUSE		MCP	1985	000	AKNR	86C0408
ALMY 893100	ADD TO PROP NAVY BER		MCP	1989	000	ALMY	
ALMY 913101	INSTRUMENTATION FAC		MCP	1991	001	ALMY	89C9104
ANZY 830195	ALTER STEAM PLANT		MCP	1989	005	ANZY	89C0266
ANZY 840164	ENGINEERING ANALYSIS		MCP	1989	004	ANZY	88C0015
ANZY 840166	ECIP-ALTER ELECTRICAL		SOF	1988	028	ANZY	
ANZY 860218	ECIP-UPGRADE LIGHT		MCP	1995	000	ANZY	
ANZY 860236	PHYSICAL FITNESS TRA		MCP	1993	006	ANZY	
ANZY 870198	LARGE ROCKET TEST FA		MCP	1989	000	ANZY	
ANZY 870198B	LRG ROCKET TEST FAC		MCP	1990	001	ANZY	

(1) Keys (4) Prev (5) Next (6) Chng Ord (7) Proj Mods (8) Find
(11) Add (12) Delete (13) Help (15) Print (16) Return (17) PDC
(18) 1391 (19) Dos (22) Submit (23) Rights (24) Priorities (25) Defaults
(26) Referc (27) Sub Log

Figure 3.2. Add Screen in PCMS.



ADD Project Number

This function allows you to obtain the NEXT project number in sequence.

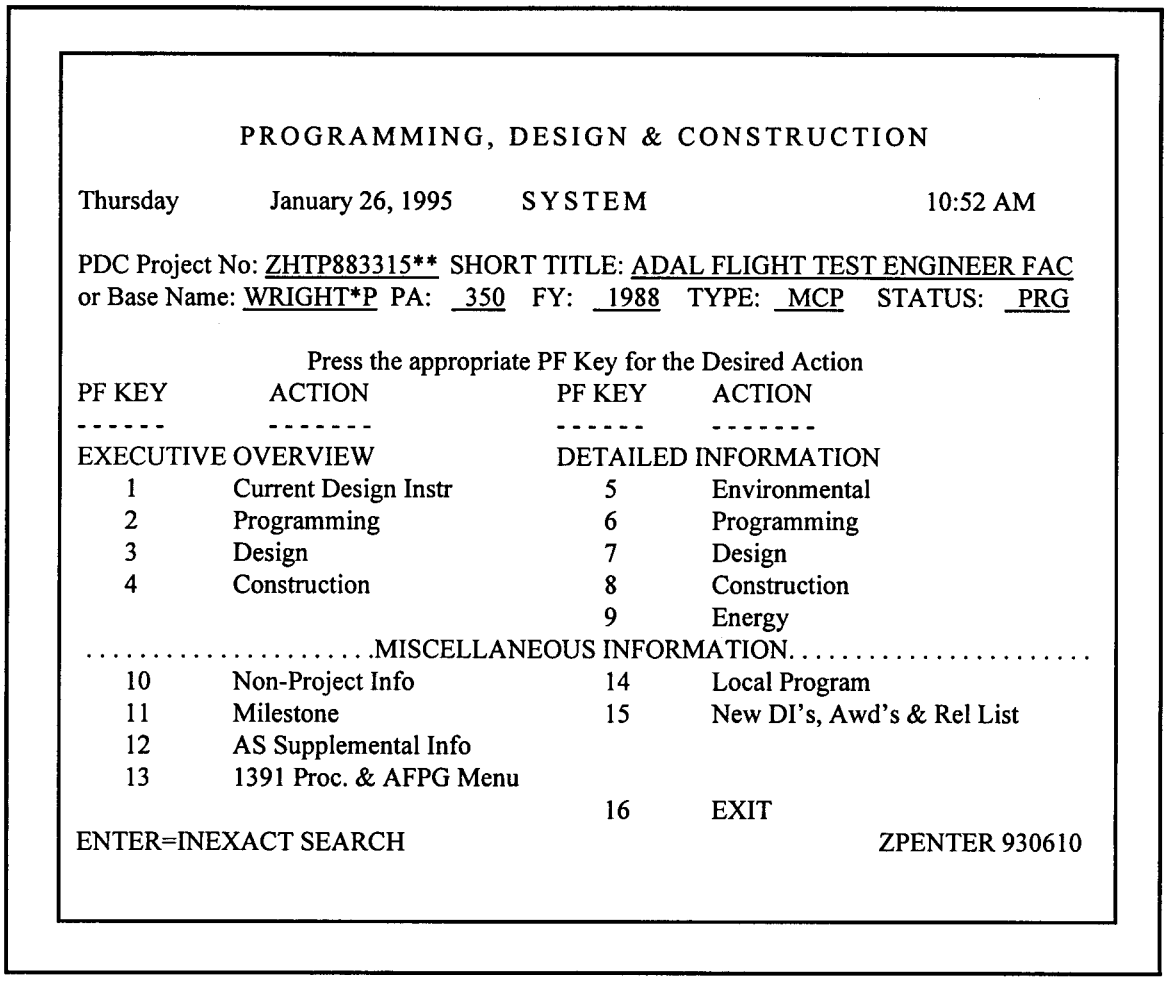
Please type in the program type required for the new project and the installation code and select the desired PF Key option to get the next number.

Program Type:	MCP	(Press PF 14 to select/list types)
Installation Code:	ANZY	

PF Key		
(1)	FY 94 0001	Next Number in Project Required year.
(2)	*****	Next Correlation for this project.
(3)	*****	Next Phase for this correlation.
(4)		Go to ADD MODE with blank number.
(6)		Add by COPYING existing project: PNQS *****

(14) Select (16) Return (32) Exit

Figure 3.3. ZPENTER.



PROGRAMMING, DESIGN & CONSTRUCTION

Thursday January 26, 1995 SYSTEM 10:52 AM

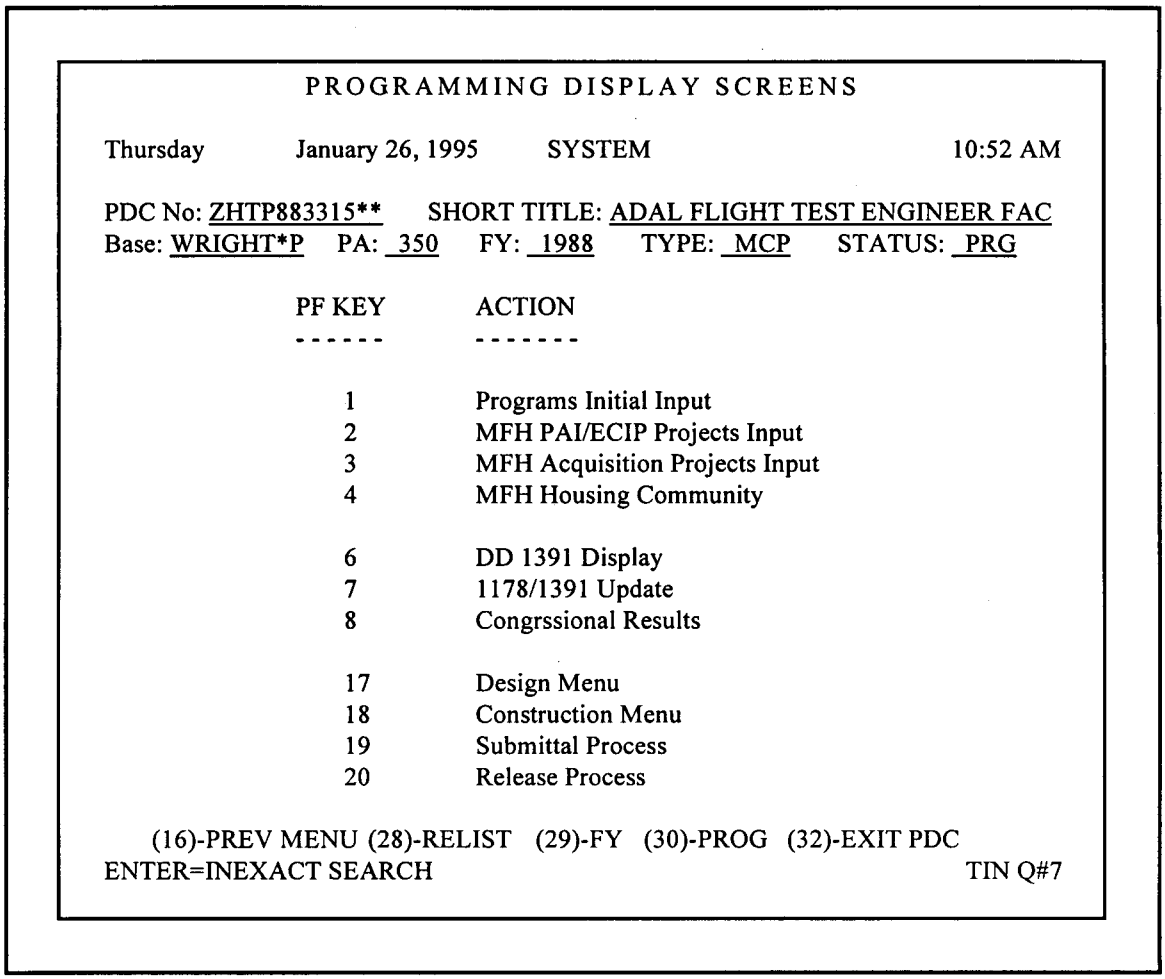
PDC Project No: ZHTP883315** SHORT TITLE: ADAL FLIGHT TEST ENGINEER FAC
or Base Name: WRIGHT*P PA: 350 FY: 1988 TYPE: MCP STATUS: PRG

Press the appropriate PF Key for the Desired Action

PF KEY	ACTION	PF KEY	ACTION
EXECUTIVE OVERVIEW		DETAILED INFORMATION	
1	Current Design Instr	5	Environmental
2	Programming	6	Programming
3	Design	7	Design
4	Construction	8	Construction
		9	Energy
.....MISCELLANEOUS INFORMATION.....			
10	Non-Project Info	14	Local Program
11	Milestone	15	New DI's, Awd's & Rel List
12	AS Supplemental Info		
13	1391 Proc. & AFPG Menu		
		16	EXIT

ENTER=INEXACT SEARCH ZPENTER 930610

Figure 3.4. TINQ#7.



PROGRAMMING DISPLAY SCREENS

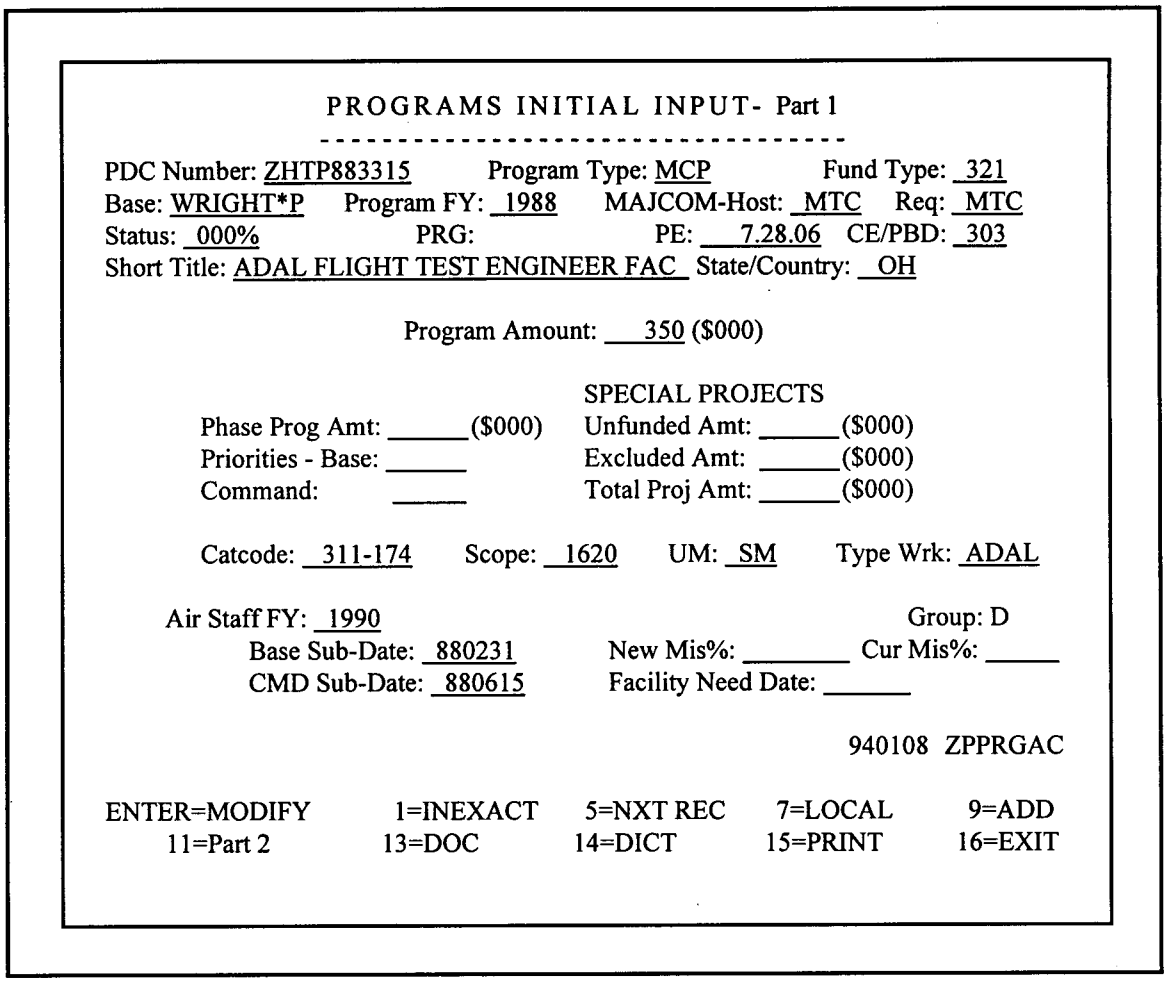
Thursday January 26, 1995 SYSTEM 10:52 AM

PDC No: ZHTP883315** SHORT TITLE: ADAL FLIGHT TEST ENGINEER FAC
Base: WRIGHT*P PA: 350 FY: 1988 TYPE: MCP STATUS: PRG

PF KEY	ACTION
1	Programs Initial Input
2	MFH PAI/ECIP Projects Input
3	MFH Acquisition Projects Input
4	MFH Housing Community
6	DD 1391 Display
7	1178/1391 Update
8	Congrssional Results
17	Design Menu
18	Construction Menu
19	Submittal Process
20	Release Process

(16)-PREV MENU (28)-RELIST (29)-FY (30)-PROG (32)-EXIT PDC
ENTER=INEXACT SEARCH TIN Q#7

Figure 3.5. Programs Initial Input - Part 1.



PROGRAMS INITIAL INPUT- Part 1

PDC Number: ZHTP883315 Program Type: MCP Fund Type: 321
Base: WRIGHT*P Program FY: 1988 MAJCOM-Host: MTC Req: MTC
Status: 000% PRG: PE: 7.28.06 CE/PBD: 303
Short Title: ADAL FLIGHT TEST ENGINEER FAC State/Country: OH

Program Amount: 350 ($000)

SPECIAL PROJECTS

Phase Prog Amt: _____($000) Unfunded Amt: _____($000)
Priorities - Base: _____ Excluded Amt: _____($000)
Command: _____ Total Proj Amt: _____($000)

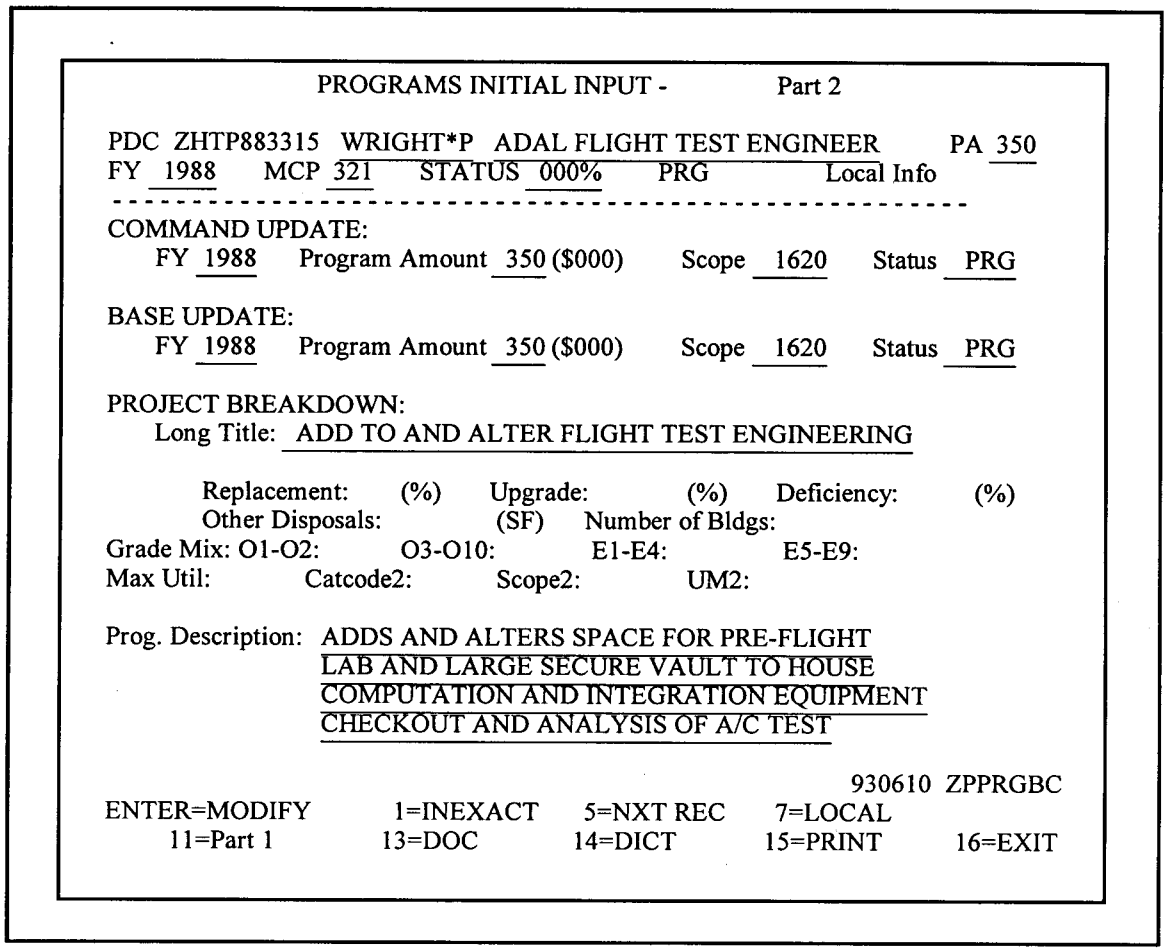
Catcode: 311-174 Scope: 1620 UM: SM Type Wrk: ADAL

Air Staff FY: 1990 Group: D
Base Sub-Date: 880231 New Mis%: _____ Cur Mis%: _____
CMD Sub-Date: 880615 Facility Need Date: _____

940108 ZPPRGAC

ENTER=MODIFY 1=INEXACT 5=NXT REC 7=LOCAL 9=ADD
11=Part 2 13=DOC 14=DICT 15=PRINT 16=EXIT

Figure 3.6. Programming Initial Input - Part 2.



```
                    PROGRAMS INITIAL INPUT -          Part 2

PDC ZHTP883315  WRIGHT*P  ADAL FLIGHT TEST ENGINEER        PA 350
FY 1988     MCP 321     STATUS 000%     PRG          Local Info
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
COMMAND UPDATE:
    FY 1988    Program Amount 350 ($000)     Scope 1620     Status PRG

BASE UPDATE:
    FY 1988    Program Amount 350 ($000)     Scope 1620     Status PRG

PROJECT BREAKDOWN:
    Long Title: ADD TO AND ALTER FLIGHT TEST ENGINEERING

        Replacement:     (%)    Upgrade:          (%)    Deficiency:      (%)
        Other Disposals:          (SF)   Number of Bldgs:
Grade Mix: O1-O2:        O3-O10:         E1-E4:          E5-E9:
Max Util:        Catcode2:        Scope2:         UM2:

Prog. Description: ADDS AND ALTERS SPACE FOR PRE-FLIGHT
                   LAB AND LARGE SECURE VAULT TO HOUSE
                   COMPUTATION AND INTEGRATION EQUIPMENT
                   CHECKOUT AND ANALYSIS OF A/C TEST

                                                    930610 ZPPRGBC
ENTER=MODIFY      1=INEXACT     5=NXT REC     7=LOCAL
   11=Part 1      13=DOC        14=DICT       15=PRINT      16=EXIT
```

Figure 3.7. Projects Submittal Procedures.

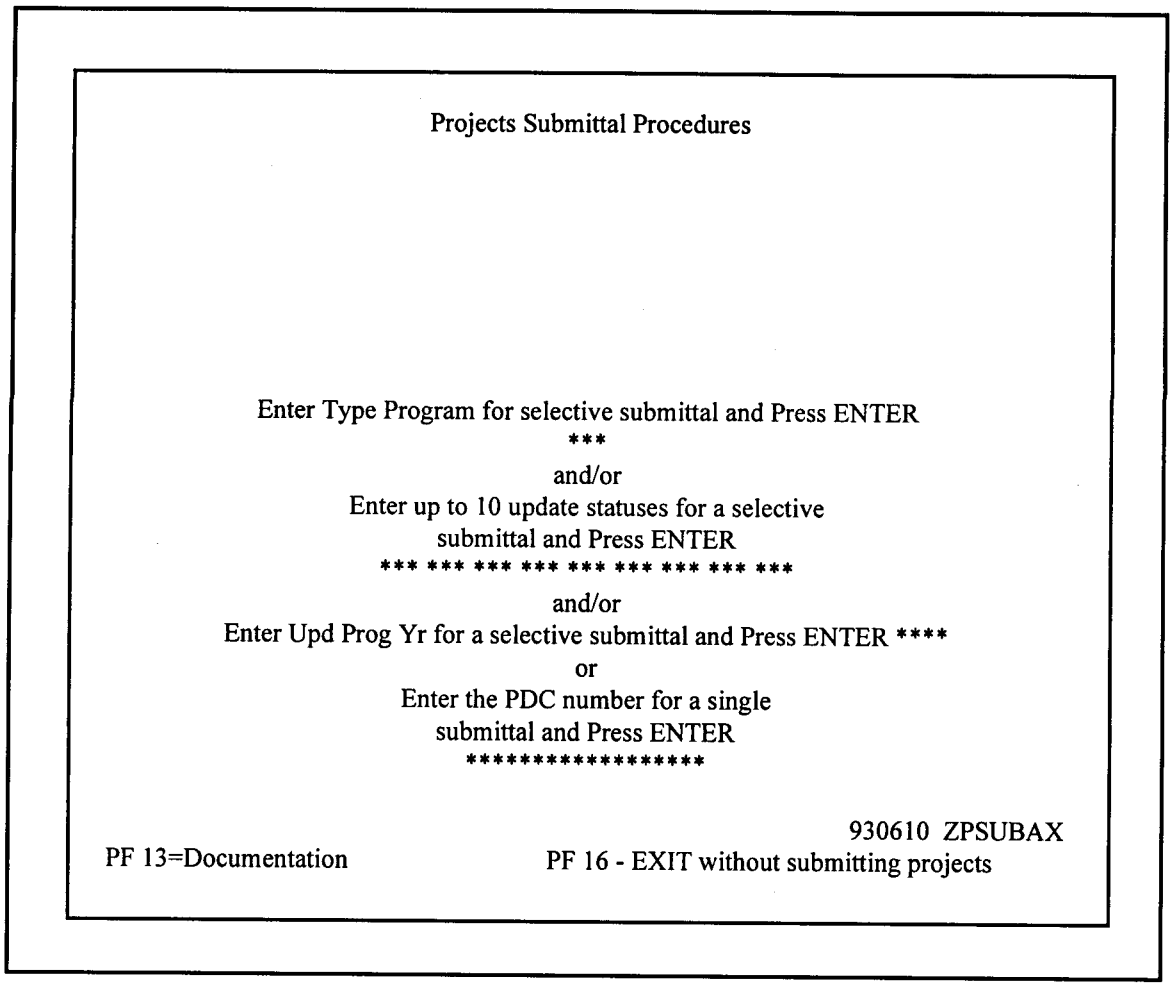


Figure 3.8. Projects Submittal Procedures.

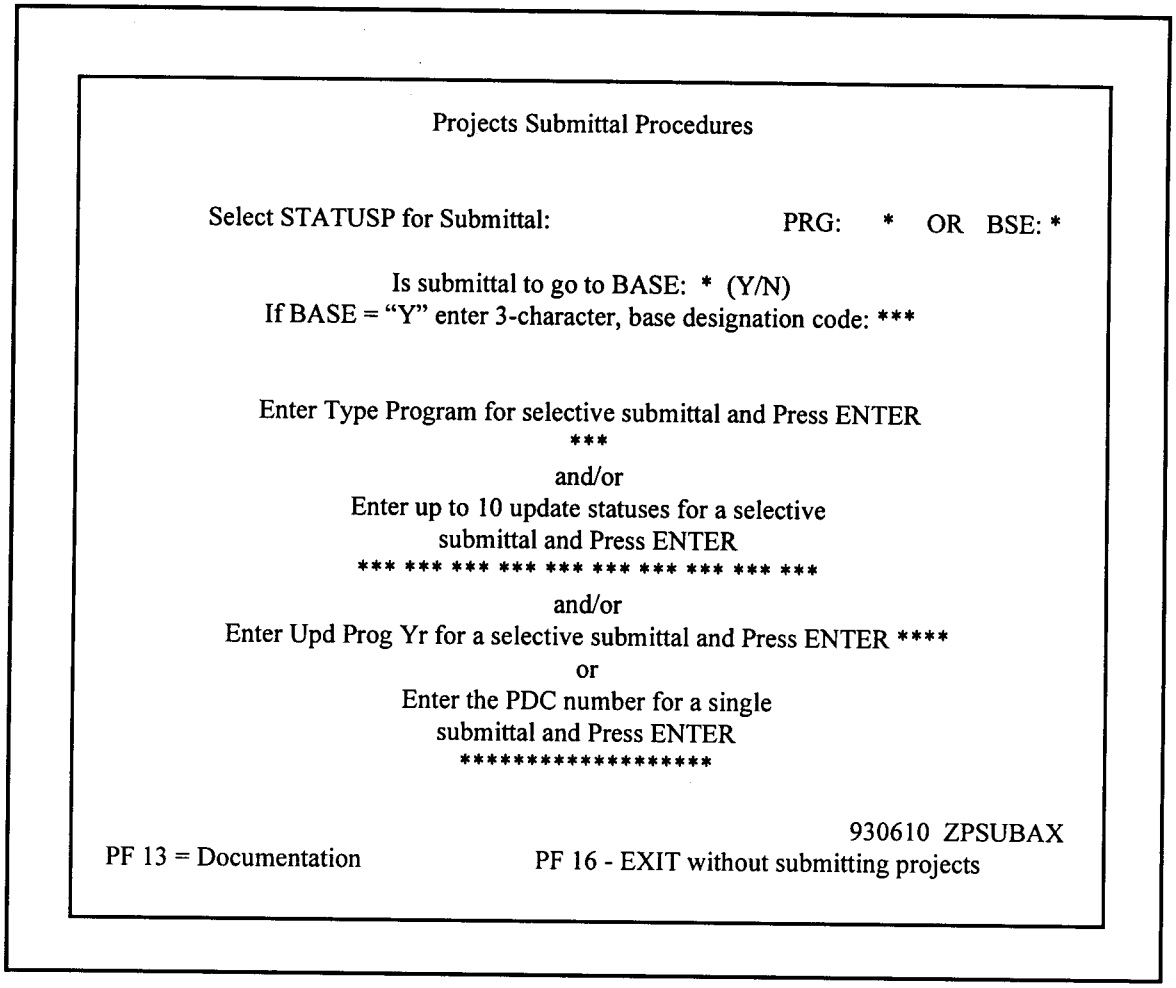


Figure 3.9. Projects Submittal Procedures.

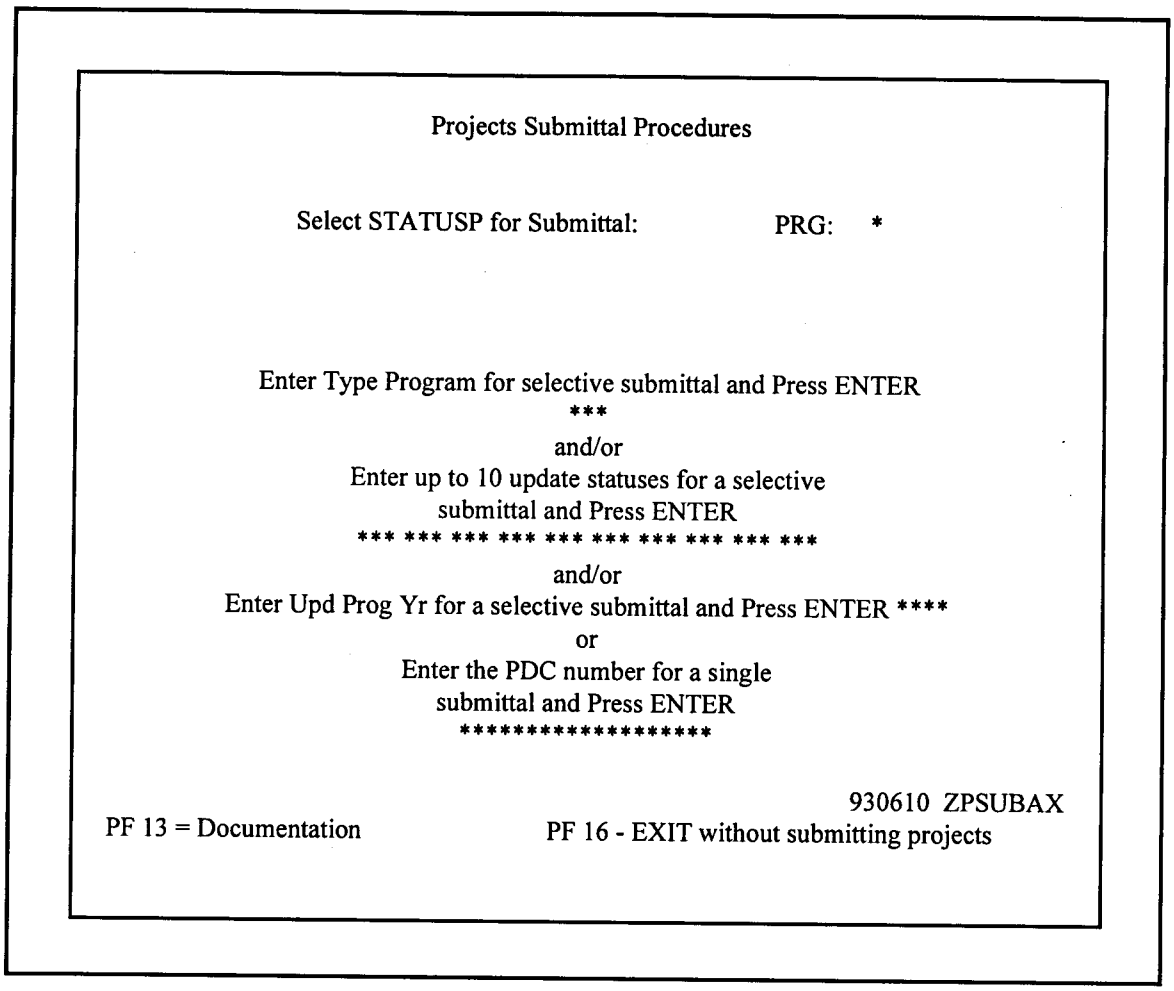


Figure 3.10. Non-Project Information.

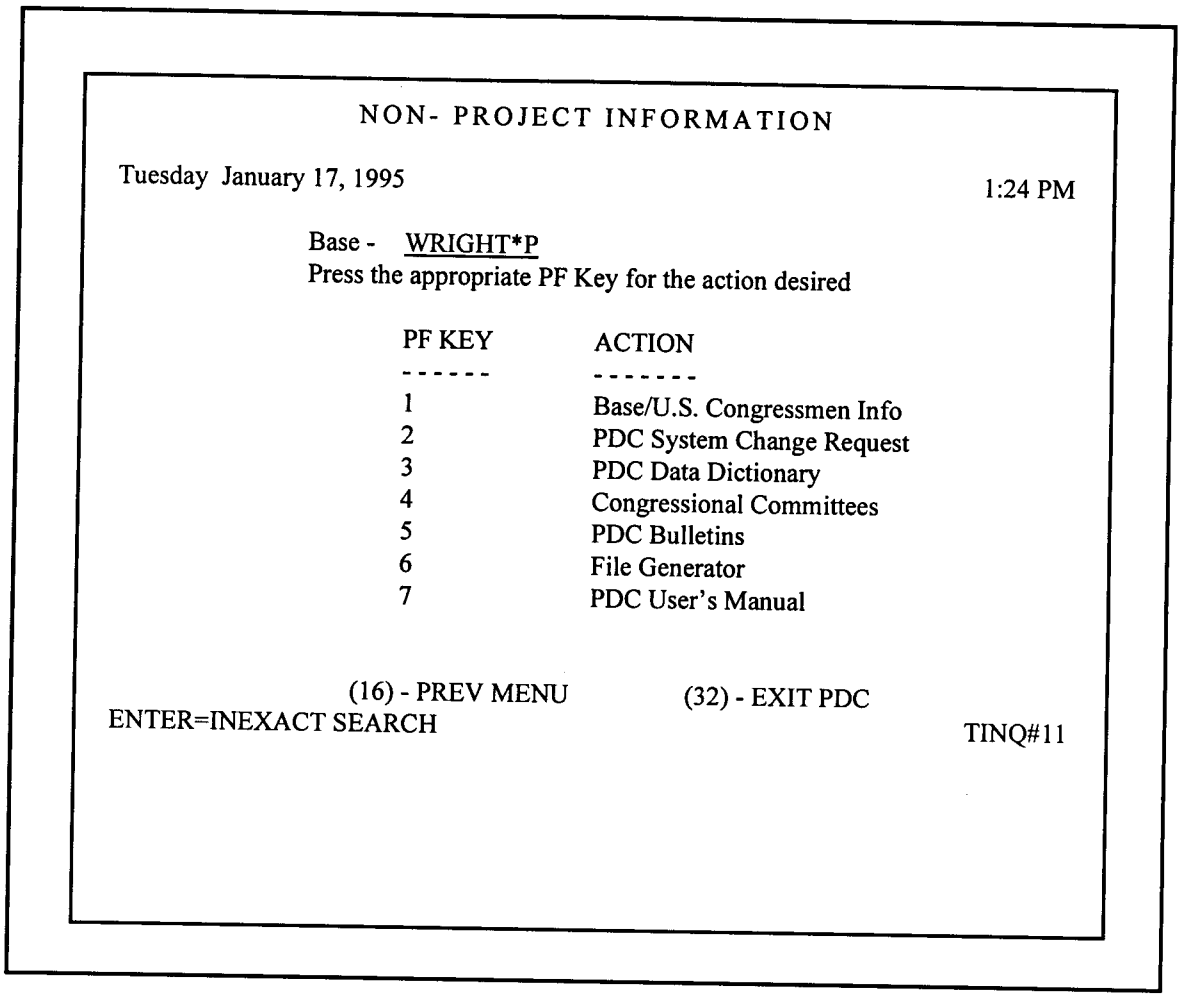


Table 3.1. PBDs.

301	Operations and Training Facilities
302	Maintenance and Production Facilities
303	Research and Development Facilities
304	Supply Facilities
306	Administration Facilities
307	Troop Housing (Dormitories)
308	Community Facilities (Child Development Centers, CES, GYMS, etc.)
309	Utilities Installation (Land, Electricity, Water)
310	Pollution Abatement Projects
312	Energy Conservation Investment Program
330	Consolidated Crypto Program

314	Planning and Design Program
315	Minor Construction
331	GDIP
333	Special Activities, AF

Table 3.2. Commonly Used Category Codes for Military Construction and Preferred Descriptions.

CATEGORY CODE	DESCRIPTION
010-211	Planning and Design
100-000	Various Facilities (e.g., F-117A Facilities)
111-111	Runway
112-211	Taxiway
113-321	Aircraft Parking Apron
116-116	Shortfield Assault Strip
116-665	Sound Suppressor Support Pad
121-122	Hydrant Fueling System
124-000	Bulk Storage Basins
125-554	POL Pipeline
130-142	Fire Station
130-835	Security Police Operations
130-111	Communications Facility
131-132	Communications Ground Terminal
136-661	Apron Lighting
141-181	Aircraft Shelter
141-232	Aerial Port
141-391	Radar Facility (e.g., TPQ-18 RADAR Facility)
141-453	Base Operations Facility
141-454	Special Operations Facility
141-459	Crew Readiness (e.g., JRTC Operations Center)
141-753	Squadron Operations Facility
141-763	Technical Laboratory (e.g., C-17 Engineering Test Laboratory)
141-764	Integration Support Facility
141-782	Air Freight Terminal
141-911	Missile Operations Building (e.g.,. Remote Missile Crew Facility)
149-962	Control Tower
154-452	Waterfront Improvements (e.g., Sea Wall/Erosion Protection)

CATEGORY CODE	DESCRIPTION
171-152	Academic Lecture Hall (e.g., Consolidated Academic Complex)
171-211	Flight Training Facility
171-212	Flight Simulator Facility
171-213	Specialized UPT Squadron Operations Facility
171-476	Combat Arms Training and Maintenance Facility
171-617	Training Services Facility
171-618	Field Training Facility
171-621	Training Classroom (e.g., 7-Level Training Classrooms)
171-815	NCO Professional Military Education Center Complex
179-475	Combat Arms Training Facility
179-511	Fire Training Facility
211-111	Maintenance Hangar
211-152	Aircraft General Purpose Maintenance Shop
211-153	Nondestructive Inspection Facility
211-154	Maintenance Facility (e.g., F-117 Maintenance Facility)
211-157	Engine Inspection and Repair Shop
211-159	Corrosion Control Facility
211-173	Aircraft Maintenance Dock
211-179	Fuel Systems Maintenance Dock
211-183	Aircraft Engine Test Facility
211-193	Sound Suppressor Support
211-254	Depot Plating Shop
214-425	Vehicle Maintenance Facility
216-642	Munitions Maintenance Facility
218-712	Aircraft Support Equipment Maintenance Facility
219-944	Base Engineering Complex
311-173	Acquisition Management Complex
411-134	Underground Fuel Storage Tanks
411-135	Underground Fuel Storage Tanks
422-253	Munitions Storage Facility
442-257	Hazardous Material Storage Facility; Hazardous Waste Storage Facility
442-515	War Readiness Material Medical Storage Facility
442-758	Base Supply and Equipment Warehouse
510-278	Aeromedical Staging Facility
610-127	Base Engineering Complex

CATEGORY CODE	DESCRIPTION
610-128	Base Support Complex
610-144	Munitions Maintenance Support Facility
721-312	Dormitory
721-315	Dormitory
722-351	Dining Facility
723-388	Flight Kitchen
724-415	Student Officer Quarters, Student Dormitory
724-417	Visiting Officers Quarters, Student Dormitory
740-674	Physical Fitness Center
740-884	Child Development Center
813-231	Electric Substation
831-000	Spill Containment Controls
831-155	Industrial Wastewater Treatment and Disposal Plant, Industrial Wastewater Treatment Plant
831-165	Sewage Treatment Plant, Sewage and Storm Water Collection Systems
831-168	Wastewater Treatment Plant
832-266	Sanitary Sewer System, Sanitary Sewer Lines
871-183	Storm Drainage Facilities, Storm Drainage System
911-146	Drop Zone Land Acquisition
921-167	Land Restrictive Easement Acquisition
921-177	Land Acquisition

Chapter 4

DOCUMENT PREPARATION

4.1. Introduction. This chapter provides a comprehensive description of the documentation necessary to program an Air Force construction project. It includes step-by-step instructions on how to complete the key elements of the documents, as well as examples of properly prepared and well-written documentation for some of the most commonly programmed facilities. Emphasis is placed on the DD Form 1391, which is the primary programming document used for construction projects. Following is a list of the documents that are required as part of the regular MILCON programming process and accompany the project submittal package:

- DD Form 1391.
- AF Form 1178/1178B.
- Deficiency Detail Data Sheet (D3 Sheet).
- Single Line Drawing.
- Site Plan.
- Location Plan.
- Certificate of Compliance for Critical Planning Actions.
- Economic Analysis Certification.
- List of Equipment (as applicable).
- Supporting Photographs (as applicable).
- Aircraft Parking Plan (as applicable).
- NATO eligibility data sheet (as applicable).

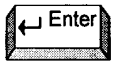
4.2. Preparation of the DD Form 1391, FY 19 __Military Construction Project Data. The DD Form 1391 is the most important document in the MILCON submittal. It is the primary document used to program construction projects, and it is essential that programmers understand the rationale behind its key elements. The form is reviewed at all levels of the programming process, from the installation where it is prepared to the MAJCOM, Air Staff and OSD reviews, and to Congress where the project is authorized and appropriated for accomplishment. Since DoD construction requirements always exceed the amount of money available to fund them, each review of a proposed program essentially constitutes a competition where only the best-planned and most well-justified projects compete for scarce resources. To give a project the maximum opportunity for survival, its DD Form 1391 must clearly state a compelling need for the requirement, including the impact on the Air Force if it is denied. It must also present a well-thought-out construction alternative to satisfy the requirement, including an accurate and comprehensive cost estimate. All entries on the DD Form 1391 must be complete, clear, and concise. The writer must consider that the readers are people with comptroller or legislative background but at the same time ensure the information contained in the documents can be understood from a layman's point of view. The guidance in this section follows the format of the DD Form 1391 and, in general, applies to all MILCON projects. However, certain differences exist in the preparation of DD Forms 1391 for Minor Construction, Emergency MILCON, and Maintenance and Repair projects. These differences are pointed out in **Table 4.5.**, found at the end of this chapter. There are two methods of preparing DD Forms 1391:

- Computerized method using the 1391 processor in the PDC system.

- Manual method.

The following sections describe the manual preparation of the DD Form 1391 and present guidance and rationale for all entry items on the form. In the computerized method, the 1391 processor automatically generates many of the key entries in the form. Blocks 1, 3, 4, 5, 6, and 7 are automatically generated, taking information from the PDC files as described in Chapter 3, and Blocks 8 and 9 are automatically generated if the cost estimates are prepared using the 1178 processor, as described in paragraph 4.3. However, some modifications in the entries may be required based on the guidance provided below for filling out each block. The user may overwrite or manually alter these entries as necessary in the 1391 processor. The other blocks are not automatically generated and must be completed manually based on the guidance outlined below when using the 1391 processor. If you are using the computerized method, press PF Key 13 from the main PDC menu to access the DD Form 1391 processor. The PF Key functions within the 1391 processor are presented in **Table 4.1. Attachment 2** provides sample DD Forms 1391 for some programmed facilities. For guidance on the preparation of Family Housing project documentation, refer to AFI 32-6002.

Table 4.1. PF Key Functions.

PF Key	Function
	Will access Blocks 1 through 7 of the DD Form 1391 from the main 1391 menu.
	Will access Blocks 9, 10, 11, and 12 within the processor.
	Once in Block 11, PF Key 4 will advance you within Block 11.
	Will return you to the main 1391 menu.
	Will create an official 1391 while in Blocks 1-7.
	Will save information.

4.2.1. Block 1, COMPONENT. Type in AIR FORCE (always in capital letters) in this block.

4.2.2. Title Block, FY XXXX MILITARY CONSTRUCTION PROJECT DATA. Always fill in the blank (XXXX) with the appropriate fiscal year for which the project is programmed.

4.2.3. Block 2, DATE. Always leave this block blank.

4.2.4. Block 3, INSTALLATION AND LOCATION. Spell out in capital letters the installation's official name in full, followed by a comma, then the state or country where it is located. Use no abbreviations. The examples are as follows:

- POPE AIR FORCE BASE, NORTH CAROLINA
- LAJES FIELD, AZORES, PORTUGAL
- RAMSTEIN AIR BASE, GERMANY

- ROYAL AIR FORCE MILDENHALL, UNITED KINGDOM

4.2.5. Block 4, PROJECT TITLE. Type in the title in all capital letters based on the following naming conventions. Rules on project titles change from time to time. If in doubt, check with the MAJCOM for the latest convention. In general, the following rules will apply:

- Do not use category code nomenclatures and try not to use abbreviations. Use abbreviations or accepted acronyms only when space is limited.
- Do not use the word "construct," and do not state that a project is a deficiency, deficiency replacement, or replacement.
- Do not identify project "phases" in the title. Describe project phases in Block 11.
- If more than one facility of the same type is included in the project, indicate it by using the plural of the facility name; for example, Aircraft Maintenance Facilities, Dormitories, etc. Do not state the number of facilities in the title.
- Use common terms for facility descriptions; for example, use Dormitories instead of Unaccompanied Officer (or Enlisted Personnel) Housing, Dining Facility instead of Dining Hall, Base Engineer Complex instead of BCE Facility, etc.
- For projects where the major thrust is to correct OSHA hazards, suffix the title with "(OSH)."
- For new mission projects, start the title with the abbreviation or acronym of the name of the mission that the project supports. For example, projects being constructed to support a new mission called "Advanced Tactical Fighter (ATF)" would be: ATF Dormitory, ATF Aircraft Maintenance Unit, etc.

NOTE:

In the 1391 processor, this block is computer generated and is taken from the Long Title of Part 2, Program Initial Input Screen in the PDC system (see Chapter 3, step #33). If a title change is required, do so in the Long Title of Part 2, Program Initial Input Screen. The change would automatically be reflected in this block and Block 9 (as discussed in paragraph 4.2.10).

4.2.6. Block 5, PROGRAM ELEMENT. Type in the PE number as X.XX.XX using decimals. Conventions for using the PE number are as follows:

- If a project directly supports a system or aircraft that has its own PE, use that PE.
- For upgrading, modernizing, and correcting deficiencies that are not directly tied to a separate mission, use the base operating support PE.
- For environmental compliance projects, use the specific environmental compliance PE.
- Ensure that the PE number you use is the same PE number being used by your Directorate of Plans (XP) Office.

4.2.7. Block 6, CATEGORY CODE. Type in the category code by putting a dash in between the first three digits and last three digits. Proper category coding is necessary to maintain accurate records on the amount and types of assets in the Air Force inventory. For projects involving two or more category codes, enter the category code for the facility having the largest scope. If no category code exists, assign 100-000. For a listing of commonly used category codes, refer to table 3.2. Also consult the following sources for the correct category code:

- Air Force Handbook 32-1084, *Air Force Standard Facility Requirements.*

- Category code listing in the Automated Air Force Pricing Guide (AAFPG).
- AFCESA Category Code Listing.
- AF Corporate Data Dictionary available through the Defense Data Network.

4.2.8. Block 7, PROJECT NUMBER. Type in the ten-digit alphanumeric code as described below. The format of the project number is AAAAXXXXXX, and is coded as follows:

- AAAA - Installation Code (Alpha)
- XX - Last two digits of the Program Year (Numeric)
- XXXX - Four-digit Project Number in numerical sequence (Numeric)

For example, for a Pentagon project that is the first project programmed in 1997, the project number would be PAYZ970001.

4.2.9. Block 8, PROJECT COST ($000). The total project cost is the same as the TOTAL REQUEST (ROUNDED) entry in Block 9 (as described below). Type in the Total Request amount from Block 9 in this block.

4.2.10. Block 9, COST ESTIMATES. This item contains the cost and scope of the project and is one of the most important elements of the DD Form 1391. It is critical that this information be carefully calculated using an acceptable cost estimating method (AAFPG, PACES, etc.) and that it be entered clearly and accurately on the programming document. Keep in mind that the dollars shown in this entry become the programmed amounts (PA) authorized and appropriated by Congress. The entries in this block must be consistent with the unit cost approved by OSD for the facility type. If the unit cost differs, it will require strong justification. Properly completed Block 9s are shown on the sample 1391s in **Attachment 2**. As mentioned above, Block 9 will be computer generated if the project costs are created with the help of the 1178 processor. However, the items may be manually manipulated based on the following instructions. Press PF Key 12 to go to Block 9 in the 1391 processor and make item changes as necessary by tabbing to the item and pressing ENTER. While using the manual method, follow the instructions described below to complete this block. Note: All entries in Block 9 should be entered in all capital letters. Try not to use abbreviations to describe items listed in the line descriptions. Do not use acronyms, such as "ADAL" for "Addition/Alteration."

4.2.10.1. Primary Facility. The following rules apply for entering primary facility cost items:

- The first entry in the ITEM section of Block 9 is the primary facility, which should match the project title in Block 4. For dormitories, visiting officer/airmen quarters, bachelor officer quarters, and noncommissioned officer quarters projects, also include the number of personnel to be housed in parentheses, such as "Dormitories (150 PN)."
- Include all costs within the 1.5-meter (5-foot) line of the facility.
- When Lump Sum is used as the unit of measure, enter LS in the U/M column and leave the QUANTITY and UNIT COST columns blank. Where there are major subcategories of significant cost, indent and list the items. Use the format shown in **Figure 4.1.**
- For Addition/Alteration (ADAL) projects, show a breakdown in the quantities of work. Indent and show the scopes and unit costs of the addition and alteration separately as indicated in **Figure 4.2.** Total the two units in order to arrive at the overall scope.
- If two or more structures with different category codes are involved in a single construction project, combine their costs into one amount. Enter this amount as the primary item

cost with a lump sum unit of measure. Then indent and show the scope and unit cost of each facility involved. Use the format shown in **Figure 4.3.**

- In the right-hand cost column, round off total item cost to the nearest thousand dollars. Do not use decimals.
- For new construction, include the cost of air conditioning and conventional wet-pipe fire protection systems in the unit cost of the primary facility. Do not identify them as separate items. Only unusual costs should be included as supporting facility costs.
- Always include the cost of RPIE in the unit cost of the primary facility. Include an itemized list of RPIE on the DD Form 1391c as backup.
- Land acquisition estimated to cost more than $200,000 for the sole purpose of acquiring land (not associated with any facility construction) must be included in a separate DD Form 1391 showing Land as the primary facility in Block 9, with acreage (AC) as the unit of measure. Supporting items for the land purchase will include: severance damage, crop damage, hazard removal, relocation, resettlements, value of minerals, and subordination costs. Do not show estimated contingency amounts to cover unforeseen expenses, such as condemnation and escalating land value cost, as supporting items in Block 9, but include them with the land cost in the lump sum figure for the primary facility. Refer to AFI 32-9001, Acquisition of Real Property, paragraph 4.10.6.
- Land acquisition costing less than $200,000 for the sole purpose of acquiring land is funded from O&M funds. Refer to AFI 32-9001 for additional guidance.
- For projects where land acquisition is required in conjunction with a construction project, determine if the cost of the land is greater than 30 percent of the total project cost (land plus facility construction). If land cost is greater than 30 percent, program the land acquisition as a separate MILCON project, as described above. If land cost is less than 30 percent, include the land purchase with the construction project, making sure that "Land Acquisition" is a part of the project title. Include the land purchase as an entry under Supporting Facilities in Block 9, as described below.

Conventions on using Unit of Measure (UM) for some primary facilities are presented in **Table 4.2.**

Table 4.2. Units of Measure for Different Facility Types.

Facility Type	**Units Of Measure (UM)**			
	D3 Sheet	**DD Form 1391**		
	Items a-g	**Block 9**	**Block 10**	**Block 11**
Dining Hall	SM	SM	SM	SM
Chapels and Theaters	Seats/SM	SM	No. of Seats	SM
Ammo. Storage	SM	SM	SM	SM
Warehousing	SM	SM	SM	SM
POL Storage	Cu. M	Cu. M	Cu. M	Cu. M
POL Hydrant Systems	LPM/OL	LPM/OL	LPM/OL	LPM/OL

Facility Type	Units Of Measure (UM)			
	D3 Sheet	DD Form 1391		
	Items a-g	Block 9	Block 10	Block 11
Docks, Hangars, Shelters	Aircraft Spaces/SM	SM		
Dormitories	Number of Persons (PN)	SM	Grade Mix	PN
Air Conditioning	SM (of area to be air conditioned)		kW	
Fire Protection Systems	SM (of area to be protected)			
Airfield Pavements	SM			
Other Facilities Not Listed Above	SM	SM	SM	SM
Key:SM = Square Meters;PN = Persons;LPM = Liters per Minute Cu. M = Cubic Meters;kW = Kilowatts				

4.2.10.2. Supporting Facilities. The second line item under the ITEM column of Block 9 is SUPPORTING FACILITIES. Supporting facilities includes items that are directly related to and needed to support the project, but that are not part of the primary facility. In most cases, supporting facilities are those items that are 1.5 meters (5 feet) beyond the building or facility limits. Supporting facilities cost can be figured as a percentage of the primary facility cost. The 1178 processor in the PDC system provides typical percentages for supporting facilities for each primary facility unit cost. List common sub-items and construction elements of significant cost as separate line items. Typical supporting items, their order, and their units of measure are shown in **Figure 4.4.** The following conventions apply to supporting facilities cost items:

- Normally, supporting facilities items are lumped together by three major categories: Utilities, Pavements, and Site Improvements. The total supporting facilities cost is equally apportioned between these items. When necessary, use other items listed in **Figure 4.4.**
- Include all clearing, grubbing, earthwork, grading, and seeding in "Site Improvements." High-cost items, such as rock excavation, earth coverage of storage igloos, or earth barricades, should be shown separately.
- List as "Pavements" all aircraft and nonaircraft pavements, such as roads, parking lots, ramps, aprons, access taxiways, and walks. Runways are not considered to be pavements; they are a primary facilities cost item. Do not show curbs and gutters separately unless they are provided for existing pavements and are of significant cost.
- Include demolition if the facilities are in the way of construction, or interfere with the function or operation of the facility, or when they will be replaced by this project. Show total square meters to be demolished. This entry must match the data on the Existing D3 sheet (see paragraph 4.4) and AF Form 1178.
- If existing utilities do not have enough capacity to carry the new loads generated by the project, include the cost to provide this capacity increase under "Supporting Facilities." Major base-wide capacity increases will be programmed as a separate project.

- When relocation or construction of any facility is a result of the project, list the facility and the costs of the associated removal, relocation, or replacement.
- Supporting facilities for a project to alter an existing building must include the construction or lease cost of a short-term facility needed to house the functions that would have to be displaced during the alteration work. While lease costs are normally O&M expenses, in this case the full cost of the lease while the building is being altered and will not be available will be included in the MILCON cost of the project. The cost of this short-term facility (construction or lease) must be specifically listed as a supporting facility, and must be included in the original project life-cycle analysis that was used to determine the advisability of alteration versus new construction.
- Identify as a separate line item operation and maintenance manuals for complex mechanical/electrical subsystems in programmed facilities.
- Include the cost of environmental restoration/compliance and asbestos removal as separate line items.
- Include special fire protection systems, special communications support, special foundations, and tempest shielding as separate line items.

4.2.10.3. SUBTOTAL. The third line item under the ITEM column of Block 9 is Subtotal. Add the estimated total cost figures for the primary and supporting facilities costs in this block as shown in **Figure 4.5.**

4.2.10.4. CONTINGENCY. Contingency is calculated as a percentage of the total of primary and supporting facilities costs (subtotal cost). Contingency is normally five percent of the subtotal cost. Rates in excess of five percent should be justified in Block 11, as described in paragraph 4.2.12.8.

4.2.10.5. TOTAL CONTRACT COST. Add the contingency to the subtotal cost to get total contract cost as shown in **Figure 4.5.**

4.2.10.6. SUPERVISION, INSPECTION AND OVERHEAD. This is the fee charged by the construction agent to manage project design and construction. Use a percentage based on the following conventions of the total contract cost (paragraph 4.2.10.5) for supervision, inspection, and overhead (SIOH) (see **Figure 4.5.**). The percentages are stated in the current edition of the AAFPG documentation in PDC and are as follows:

- Use six percent (6%) for SIOH on CONUS projects where the US Army Corps of Engineers is the design agent.
- Use six and one-half percent (6.5%) for SIOH on CONUS projects where the Navy is the design agent.
- Use two and one-half percent (2.5%) for SIOH on projects located in the United Kingdom.
- Use six and one-half percent (6.5%) for SIOH on projects located in United States Air Force Europe (USAFE) in other than the United Kingdom.
- Use six and one-half percent (6.5%) for SIOH on other overseas projects where the Army or Navy is the design agent.

4.2.10.7. TOTAL REQUEST. The Total Request will be obtained by adding the SIOH to the total contract cost as shown in **Figure 4.5.**

4.2.10.8. TOTAL REQUEST (ROUNDED). Enter the Total Request (Rounded), according to the rounding rules in **Table 4.3.** This is the amount that appears in Block 8. However, in the 1391 processor at the Air Staff level, this entry may be manually manipulated for special projects requiring exact project cost (not rounded off to the nearest ten thousand dollars).

Table 4.3. Rounding Rules.

If the Project Estimate Is	Rounding Guidance
Less Than $1 Million	Nearest $10,000
Between $1 Million and $5 Million	Nearest $50,000
Between $5 Million and $10 Million	Nearest $100,000
Between $10 Million and $15 Million	Nearest $200,000
Between $15 Million and $20 Million	Nearest $500,000
Over $20 Million	Nearest $1,000,000

4.2.10.9. EQUIPMENT PROVIDED FROM OTHER APPROPRIATIONS (NON-ADD). This is equipment associated with the project but bought and installed with other than MILCON funds. It may include communications and electronics equipment, ADP equipment, UPS, 3080 equipment, and any other equipment that does not become RPIE. Include any money being used for such equipment in this field as shown in **Figure 4.5.** In Block 12b, list the equipment, along with the type of funding (such as 3080, 3010, 3400, and so forth), fiscal year appropriated or requested, and line item cost. Also include any prior-year funded equipment that will be relocated to the new facility. This entry must be verified at the command level by those responsible for budgeting procurement appropriations.

4.2.11. Block 10, DESCRIPTION OF PROPOSED CONSTRUCTION. Some examples of Description of Proposed Construction statements are shown in **Figure 4.6.** Draw a line across the page at the bottom of the entry before adding Block 11. In the computerized method, press PF Key 12 to go to Block 10 and modify the description as necessary. This block should be prepared based on the following guidance:

- Provide a general description of the construction to be accomplished (concrete foundation, masonry walls, pavements, etc.), demolition, and support requirements, as appropriate.
- Also, include a description of any special and expensive elements of work. Mention air conditioning and number of kilowatts if new or replaced air conditioning is provided.
- Use abbreviations only after the terms have first been properly identified.
- Include the proposed "grade mix" and number of occupants for officer quarters or dormitory projects (i.e., grade mix: 175 E1-E4).

4.2.12. Block 11, REQUIREMENT. This block is the most important block. The information in this block either sells the project or kills it. The text in this block has to be clear, concise, accurate, and pertinent and is prepared principally by the proposed facility's intended user. There are five major parts in this block. They are first listed in capital letters and underscored. These are PROJECT, REQUIREMENT, CURRENT SITUATION, IMPACT IF NOT PROVIDED, and ADDITIONAL. If you are using the 1391 processor, press PF Key 12 to access this block and complete this block manually according to the following guidance. Press PF Key 4 to advance from one part to the other, and

press ENTER to save the information. A format for Block 11 is presented in **Figure 4.7.** Do not use building numbers in Block 11. Remember to clarify all abbreviations.

4.2.12.1. REQUIREMENT. Directly after the word REQUIREMENT, put the total scope of the six-digit category code for the type of project being programmed. The scope should agree with the Primary Facility scope entry in Block 9. If the project involves multiple category codes, enter "as required."

4.2.12.2. ADEQUATE. Enter the adequate space for the same category code designated "Usable Class A" (condition code). Include existing space as well as space being built or upgraded in previously approved programs. Also, include programs submitted to Congress that have not yet been approved. Indicate in narrative form the specific programming projects included. This entry should total "Existing Adequate," "Funded Not In Inventories," and "Included In FY XX Program" items on the Existing D3 sheet.

4.2.12.3. SUBSTANDARD. Enter the substandard space, which is all the "Forced Use" (code 3) and "Usable Class B" (code 2) space, but exclude any space that is being upgraded or replaced in an approved project listed under "Adequate."

4.2.12.4. PROJECT: Except for new construction, the long title is used in the title block, emphasizing the action taken for new construction (e.g., if "dormitory" is in the title block and the project will construct a new dormitory, the entry here should be "Construct Dormitory"). In parentheses after that sentence, type (New Mission) or (Current Mission) (e.g., if the title is "Add to and Alter Dormitory," the entry here is "Add to and Alter Dormitory (New Mission)."

4.2.12.5. REQUIREMENT: Briefly describe why the project is required and what is needed. Some examples of "Requirement" statements are shown in **Figure 4.8.**

4.2.12.6. CURRENT SITUATION: Some examples of "Current Situation" statements are shown in figure 4.9. This block tells the story of how bad things are at your base. Clearly explain how things are being done now and why the current situation is unacceptable in terms of mission impact, safety, health, compliance with laws etc. Include the following information:

- State the type of environmental condition (Level I or II), Risk Assessment Codes (RAC), fire deficiency codes, and type of safety and other violations that exist.
- Include ratings from the Commander's Facility Assessment Program.
- Describe the inefficiencies that exist as a result of the current deficiency, facilities, etc. Include among your specifics, quantifiable cost imposed by the current situation.
- Explain in very specific terms how essential this requirement is to the mission, quality of life, etc. Do not use generalities.
- Tell how many facilities and how much area, in square meters, will be demolished as a result of this project.
- Explain how the requirement, in excess of existing assets, is now being met, such as by contract, overcrowding of facilities, dormitories, in the case of a dormitory project. If dormitories are to be converted to other uses, explain the reason the building is suitable for the new use, but not for housing.

4.2.12.7. IMPACT IF NOT PROVIDED: Tell what happens if this project is not provided. Emphasize mission impacts and identify actual costs, if possible. Also tell what the customer

must do if this project is not provided. Some examples of "Impact If Not Provided" statements are shown in **Figure 4.10.**

4.2.12.8. ADDITIONAL : Use this block to provide additional facts and pertinent information that do not logically or physically fit in previous blocks. This block should contain information on the following:

- Other phases for this project if it is part of a long-range development plan.
- Net changes in the size of facilities and the base physical plant for projects that contain demolition work.
- Rationale for substantial deviations from costs in AAFPG.
- Details on associated equipment procurement.
- Justification for contingency funding above 5 percent.

Furthermore, there are four things that definitely should appear in this block, in the following order. The 1391 processor has some of these standard statements, which are available by pressing certain PF Keys. The PF Key is included in parenthesis where available.

1. All overseas projects must address host nation ineligibility or alliance funding. Standard statements are as follows:

- This project is not eligible for NATO funding, because... (PF Key 21).
- This project is not eligible for JFIP funding, because...
- This project is not eligible for Korean CDIP funding, because... (PF Key 25).
- This project is eligible for JFIP funding, but is included in this program because...
- This project is eligible for NATO infrastructure funding because... and is being precautionarily prefinanced, because...

2. All projects over $2 million must address economic analysis (EA) issues. Projects under $2 million that are justified on the basis of economic benefits must have an EA to support the requirement. Standard statements are as follows. Fill in the parentheses and blanks with the applicable terms.

- "An economic analysis has been prepared comparing alternatives of new construction, revitalization, leasing, status quo, and (other viable alternatives). Based on the net present values and benefits of the respective alternatives, _____ was found to be the most cost-effective alternative over the life of the project." (PF Key 23).
- "A preliminary analysis of reasonable options for accomplishing this project (status quo, renovation, upgrade/removal, new construction, leasing) was done. It indicates there is only one option that (will satisfy statutory requirements/will meet operational requirements). Because of this, a full economic analysis was not performed. A certificate of exception has been prepared."

3. All projects must contain a statement on the source/basis for requirement calculations. Do not use the PF Key 28 statement ("There is no criteria/scope for this project in Part II of Military Handbook 1190, *Facility Planning and Design*."). The following items are standard:

"There is no criteria/scope for this project in Part II of Military Handbook 1190, *Facility Planning and Design*. However, this project does meet the criteria/scope specified in Air Force Handbook 32-1084, *Air Force Standard Facility Requirements.*" (PF Key 29).

"This project exceeds the criteria/scope specified in Part II of Military Handbook 1190, *Facility Planning and Design*. The reason(s) for the additional scope is (are) _____." (PF Key 27).

"This project meets the criteria/scope specified in Part II of Military Handbook 1190, *Facility Planning and Design.*" (PF Key 26).

4. Air Force Materiel Command (AFMC) depot statement.
    - "The requirement for this project was validated by the Joint Service Depot Maintenance Industrial Military Construction Review on XX Month, 19XX." (PF Key 22).

4.2.13. Block 12, Supplemental Data. This block is normally not completed by the programmer. However, if the procurement of associated equipment is involved, then the appropriate information (equipment identification, appropriation, FY requested) needs to be input into Part b of Block 12. A sample entry for this block is shown in **Figure 4.11.** Press PF Key 12 to go to Block 12 in the 1391 processor.

4.2.14. Creating an Official DD Form 1391. If you are using the 1391 processor for completing the DD Form 1391, the DD Form 1391 must be "official" before it will print. To make the DD Form 1391 official:

- Press PF Key 16 to return to the main 1391 menu.
- Press PF Key 11 "Create Official 1391" and then press ENTER.
- Press PF Key 16 to return to the main 1391 menu.
- Press PF Key 15 to print the DD Form 1391.

4.3. AF Forms 1178/1178B. AF Forms 1178/1178B are project cost estimate worksheets, generated using the 1178 processor of the AAFPG in the PDC system. AF Form 1178 is a cost estimate summary sheet and AF Form 1178B is a detail cost estimate worksheet. The AAFPG is a cost analysis tool that calculates construction cost estimates based on the most recent AF Pricing Guide Unit Prices, escalation factors, and area cost factors. The AAFPG is also used to generate Block 9 of the DD Form 1391. The following sections provide guidance on how to generate construction cost estimates and AF Forms 1178/1178B using the AAFPG. Sample AF Forms 1178 and 1178B are shown in **Figure 4.12.** and **Figure 4.13.**, respectively.

- From the PDC main menu, press PF Key 3 to access the Air Force Pricing Guide.
- Press PF Key 3 to access the Project Cost Estimate Worksheet (see **Figure 4.14.**). The fields shown on this screen are automatically entered from the PDC project data file as discussed in Chapter 3. However, this screen could be used to define or revise certain fields.
- Press PF Key 11 to add primary facilities costs. This will take you to the Primary Facility Data screen (see **Figure 4.15.**). The fields on this screen are automatically entered from the PDC project file. This screen is used to select the primary facility item to be updated or modified. However, it is recommended that any desired changes should be made in the Initial Input Screen of the PDC system as discussed in **Chapter 3**. Position the cursor on the primary facility item you wish to modify or delete. Press PF Key 4 to modify or PF Key 5 to delete an item. Refer to paragraph 4.2.10.1 (primary facility costs) for conventions on entering primary facility cost items.
- To modify a primary facility item, press PF Key 4. This will take you to the Primary Facility Edit Data screen (see **Figure 4.16.**). Change the "Cat Code," "Type Work," "Facility Description," "UM," "Scope," "Unit Cost," and "Total" fields as necessary.

1. Cat Code: Enter a new category code and press ENTER. The system will retrieve the data from the database and recalculate the costs. PF Key 10 may be used to search the category code file.

2. Type Work: Valid codes for this field are ADAL, ADD, ALTR, REP, IMP, RENV, and NEW (as discussed in paragraph 3.3.3, step #22). Change this field as necessary and press ENTER. Changing this field will change the Type Factor ("Type Fac") field on this screen. The Type Factor is actually the type of work factor, which adjusts unit costs for the type of work to be accomplished. NEW and ADD codes set the Type Factor to 1.0, since 100 percent of the unit cost would apply to new work. ADAL, ALTR, IMP, RENV, and REP codes set the Type Factor to 0.7 or 70 percent of New Construction cost. The Type Factor may be changed to any value less than or equal to 1.00.

3. Facility Description: This field is pulled from the Long Title block (paragraph 3.3.3, step #31) from the PDC system. The facility description should match the title in Blocks 4 and 9 of the DD Form 1391. Alter as necessary.

4. UM: Change the unit of measure as necessary. For dormitory projects, change the UM from PN to SM. If LS is used in the UM field, this automatically sets the scope at 1 and unit cost at 0.

5. Scope: This field is pulled from the scope field (paragraph 3.3.3, step #20) in the Initial Input Screen. Alter if required.

6. Unit Cost: The PDC system automatically enters the unit cost for the facility based on the category code, scope, facility type, type factor, and total cost.

7. Top Row Total ($000): The total cost can be changed to any value. Also, modifying inputs causes automatic recalculation of the total cost.

8. Facility Type: Each category code in the database is assigned a facility type. The facility type provides a means of grouping similar facilities under the same category code. Many facilities do not have a unit cost figure in the AAFPG and have been assigned a facility type called "USER." This means the facility does not have adequate history in the database to obtain an accurate unit cost. Common DoD facility types and unique Air Force facility types (marked with an "*") are identified in the file. Press PF Key 11 to search the Facility Type file. The facility type may be changed to any of the valid types. Press ENTER. The system retrieves the unit cost, units of measure, and average scope and recalculates the costs. Enter USER if you want to enter your own unit costs and As of Date fields. Additionally, it will set all cost data to zero.

9. Facility Type UM: This data is retrieved from the Facility Type file on the system and is shown for information purposes only.

10. Facility Type Average UM: The average size of a facility used to calculate the Size Adjustment Factor (SAF). This value is fixed and cannot be changed.

11. Guide Unit: This is the unit cost retrieved from the Facility Type file and represents the AAFPG unit cost for the facility type selected. The unit price is set to zero if the facility type is USER, as mentioned above. Unit cost cannot be changed unless the facility type is USER.

12. Loc Fac: This is the base area cost factor from the PDC Base File and cannot be changed. The unit cost of the facility is based on the location of the project.

13. Size Fac: Size Adjustment Factor (SAF) is calculated using the size adjustment curve from the AAFPG. The SAF is used to calculate the unit cost of the facility, based on the typical size of facility. If

there are no average units of measure (Facility Type Average UM), this factor is set to 1.0. The system will automatically recalculate this factor if the scope or facility type is changed.

14. Esc Fac: The escalation factor or the Cost Growth Factor (CGF) is used to adjust the unit cost to account for cost growth based on the year of the project. The escalation factor is calculated based on the As of Date for the Guide Unit Cost and the As of Date for the Total Unit Cost fields described below. The factor is based on the DoD-allowed escalation factors. The factor will automatically change to the correct value if a different As of Date for a facility type is entered.

15. Total Unit: The Total Unit Cost includes the Location Factor, Size Adjustment Factor, Type Factor, and the Escalation Factor. This value is for display only. The Unit Cost figure on the top row (as discussed above) is printed on the AF Form 1178 and the DD Form 1391. The top row figure is changeable.

16. Total ($000): This is the calculated total cost using the Total Unit and Scope. This is a display field and cannot be changed.

17. Guide Unit As of Date: The date in YYMM format shows the As of Date for the Guide Unit field. If you have entered a USER facility type, the As of Date will be the date the Guide Unit Cost is entered. The As of Date cannot be changed unless the facility type is USER.

18. Total Unit As of Date: The Total Unit Cost As of Date escalated to midpoint of construction. This date can be changed by changing the construction start date and months of construction from the initial Project Cost Estimate Worksheet (see **Figure 4.14.**). The midpoint of construction is calculated by adding one-half of the number of months of construction to the construction start date.

- Press Enter to accept modifications.
- Back out by pressing PF Key 16. This will take you to the Project Cost Estimate Worksheet (see **Figure 4.14.**).
- Press PF Key 12 to add supporting facility costs: Supporting facilities may be a percentage of the primary facility costs or may be selected individually. You may enter a P (percent) or I (individual) for your choice.
- Type in P and then press ENTER. This will take you to the Supporting Facility screen. The supporting facility percentage screen shows each of the primary facilities' category codes, description, total cost in thousands, a supporting facility percentage, and supporting facility total cost in thousands of dollars. The supporting facility percentage is retrieved from the AAFPG, Facility Type file. Most USER facility types are set to 15 percent for the supporting facility percentage. Any of the percentages can be changed to recalculate the supporting facility costs. To recall the original values, press PF Key 1. Even though a percentage is selected for supporting facility costs, individual supporting facility items may be added.
- Press PF Key 16 to exit the Supporting Facility screen and continue to the next screen. The system will create three standard supporting facility items: Utilities, Site Improvements, and Pavements, and will equally apportion the total supporting facility costs between these items. Refer to paragraph 4.2.10.2 for conventions on entering supporting facility cost items.
- To add other facility costs, press PF Key 3. A new screen will appear with support type categories. Tab to the item/items you want to include and press ENTER. For example, if demolition is part of your project, select "Demolition" from the menu and press ENTER. If your support type category cannot be found, use "USER" and create your own category. When finished, press ENTER and then exit the add mode by pressing PF Key 16 to return to the previous screen. On

this screen, add the scope of the newly added supporting facility item. For example, tab to Demolition and enter 105,000 SM and then press ENTER.

- To modify facility costs, press PF Key 4. Type in the revisions on the screen, press ENTER, then exit.
- To delete an item, press PF Key 5. The item will flash giving you a second chance to change your mind. Press PF Key 16 to complete the deletion.
- By selecting I in lieu of P, you may build supporting facilities costs by manually selecting each item from the supporting facility database. Note: You may want to figure costs in both ways, compare them against each other, and choose the most conservative estimate.
- Press PF Key 16 twice to get back into the main 1178 menu.

4.3.1. **Make an Official Version of AF Form 1178 Cost Estimate.** The AF Form must be "official" in order for costs to be drawn into the accompanying DD form 1391. To make the form official:

- Press PF Key 3 to access the 1178 edit screen
- Press PF Key 4 to "Create Official 1178."

4.3.2. Display AF Form 1178, Project Cost Estimate Summary. From the AAFPG Initial Menu, press PF Key 7 to display AF Form 1178. Enter the PDC Number for the particular AF Form 1178 to be displayed. An 1178 Summary and an 1178B, Detailed Cost Estimate, will be displayed (see **Figure 4.12.** and **Figure 4.13.**). PF Key 10 allows the official AF Form to be displayed or printed.

4.3.3. Display Block 9 of DD Form 1391. From the AAFPG Initial Menu, press PF Key 9. This option transfers AF Form 1178 information to Block 9 of the DD Form 1391. This screen allows the supporting facility categories to be modified and prints Block 9 of the DD Form 1391 on the line printer. If the AF Form 1178 data will not convert to Block 9 of the DD Form 1391, an error message will display. The user must redo the Supporting Facility Categories. PF Key 1 obtains the Supporting Facilities screen. This screen displays supporting facilities items and enables changes to the 1391 Group. Press ENTER to recalculate the categories for the DD Form 1391 supporting facility line items and PF Key 16 to exit back to the previous menu. The following section discusses the items shown on the Supporting Facilities screen.

4.3.3.1. AF Form 1178 Supporting Facility Description.

- ($000). Shows the total cost in thousands for this item.
- Supp Type. The Supporting Facility Type. Each of the items on the AF Form 1178 is assigned a default support type.
- Group. Each of the items on the AF Form 1178 is also assigned a default 1391 Group based on the Support Type. The 1391 Group is used to determine what supporting facility items get added together to be displayed on the 1391. Additionally, it is used to determine what description is used for the DD Form 1391. The 1391 Group descriptions are shown in **Table 4.4.**
- Look at Supporting Facility Items using PF Keys 1, 6, 7, and 8. Since there is a limit of 25 supporting facility items and the display can only show 10 at a time, these keys are used to look at all of the items, 10 at a time. Use PF Key 1 to look at the first 10 items, PF Key 6 to look at the previous 10 items, PF Key 7 to look at the next 10 items, and PF Key 8 to look at the last 10 items.

- Change the 1391 Group. To change the 1391 Group for an item, enter the new group name. By using one of the default groups, the description will be retrieved automatically. PF Key 12 displays the allowable 1391 Support Group. After making all the changes, press ENTER to show the next screen. The new line item appears on Block 9 of the DD Form 1391.
- Recalculate 1391 Group Costs. Press ENTER when finished making changes, and the system will recalculate all of the supporting facility group costs and will apply the rules of rounding.
- Press PF Key 16 to exit back to the Initial Menu.
- Press PF Key 16 twice to get back to main PDC menu.

Table 4.4. 1391 Group Description.

SUPPORT TYPE	1391 GROUP	1391 TEXT
AFLD BASE	PAVEMENTS	PAVEMENTS
AFLD LIGHT	UTILITIES	UTILITIES
AFLD MISC	PAVEMENTS	PAVEMENTS
AFLD PAVE	PAVEMENTS	PAVEMENTS
AFLD SITE	SITE IMPRV	SITE IMPROVEMENTS
ASBESTOS	ASBESTOS	ASBESTOS REMOVAL
CIVIL	SITE IMPRV	SITE IMPROVEMENTS
COMM	COMM	COMMUNICATIONS SUPPORT
COMM DUCT	COMM	COMMUNICATIONS SUPPORT
COOLING	UTILITIES	UTILITIES
DEMOL BLDG	DEMOL BLDG	DEMOLITION
DEMOL PAVE	DEMOL BLDG	DEMOLITION
ELEC GEN	UTILITIES	UTILITIES
ELEC LIGHT	UTILITIES	UTILITIES
ELEC OH	UTILITIES	UTILITIES
ELEC TRANS	UTILITIES	UTILITIES
ELEC UG	UTILITIES	UTILITIES
ELEC UPS	ELEC UPS	UTILITIES
ELECTRIC	UTILITIES	UTILITIES
FENCING	SITE IMPRV	SITE IMPROVEMENTS
FIREPROT	FIREPROT	FIRE PROTECTION
GAS LINE	UTILITIES	UTILITIES
HEATING	UTILITIES	UTILITIES
LIGHTING	UTILITIES	UTILITIES
PARKING	PAVEMENTS	PAVEMENTS
PAVEMENTS	PAVEMENTS	PAVEMENTS

SUPPORT TYPE	1391 GROUP	1391 TEXT
PIPING	UTILITIES	UTILITIES
POL SYSTEM	UTILITIES	UTILITIES
RAILROAD	RAILROAD	RAILROAD
ROADS	PAVEMENTS	PAVEMENTS
SEWER	UTILITIES	UTILITIES
SHIELDING	SHIELDING	SHIELDING
SIDEWALK	PAVEMENTS	PAVEMENTS
SITE IMPRV	SITE IMPRV	SITE IMPROVEMENTS
SPEC FOUND	SPEC FOUND	SPECIAL FOUNDATIONS
STEAM LINE	UTILITIES	UTILITIES
STORM DRNG	UTILITIES	UTILITIES
USER	OTHER	OTHER SUPPORT FACILITIES
UTILITIES	UTILITIES	UTILITIES
WATER	UTILITIES	UTILITIES
WATER TANK	UTILITIES	UTILITIES

4.4. Existing Facilities/Deficiency Detail Data Sheet (D3 Sheet). This worksheet clearly defines space requirements and determines how requirements will be met, while making efficient use of existing space. The D3 sheet may be the most important document to get your project validated by the MAJCOM and Air Staff. The D3 sheets do not go outside of the Air Staff; however, the Air Staff PM may use the D3 as a source document for additional information going to OSD or Congress. The DD Form 1391c is used to document all individual facilities with similar category codes associated with, or affected by, the proposed project. A sample D3 sheet is shown in **Figure 4.17.**

4.4.1. Preparation of the D3 Sheet. D3 sheets are prepared for all projects except utility projects. Follow these general guidelines when preparing the D3 sheet:

- Be complete, accurate, and organize the information in a logical format that explains how the project scope was derived.
- Use bubble diagrams and drawings to show the functional layout of the project/requirement.
- The D3 sheet must clearly back up the numbers identified in Block 11 for Requirement, Adequate and Substandard amounts.
- In calculating your requirements, use projected end-strengths for the year specified in the annual call letter, not today's manpower numbers.
- Show both the old and new category codes for facilities being converted to other uses as a result of the new requirement.
- Show all facilities having the same category code as the facility being requested.
- Account for prior-year appropriations of the same category code when calculating your new requirements.

4.4.1.1. Computing Requirements. List the missions reflected in the latest programming document that require the category of space programmed. All calculations must be shown establishing the total requirement for that category code.

4.4.1.2. Requirement/Asset Computations.

4.4.1.2.1. Total Requirement. Enter the total scope of the six-position category code. This figure should equal the sum of items e, f, and g. All figures are available in summary from the USAF Real Property Inventory Detail Sheet, RCS: HAF-LEE (AR) 7115 report.

4.4.1.2.2. Existing Substandard. Enter the total amount of existing facilities that currently have the same designation as the requested line item but have been declared "Forced Use" (condition code 3) and "Usable Class B" (condition code 2). Do not enter "Unusable" space (condition code 5).

4.4.1.2.3. Existing Adequate. Enter the amount of adequate assets designated "Usable Class A" (condition code 1). Exclude any assets being upgraded or replaced in item d or item f below.

4.4.1.2.4. Funded, Not in Inventory. Enter those assets that, under currently approved programs, are scheduled for or are under construction or acquisition (land), but are not yet included in the current inventory. Include approved and funded O&M MILCON projects, approved and funded NAF projects, approved P-341 MILCON projects, and MILCON items for which both an authorization and appropriation exist.

4.4.1.2.5. Adequate Assets. Enter the sum of c and d.

4.4.1.2.6. Included in FY XX Program. Enter the scope of a project sent to Congress in a preceding program not yet enacted into law.

4.4.1.2.7. Deficiency. Items should be adjusted as stated (a minus e minus f). This scope is the remainder after subtracting items e and f from the total requirement, item a. If a deficiency remains after completing this proposed project, explain on the DD Form 1391c why it is not included in this project, and when it is scheduled to be programmed.

4.4.1.3. Unit of Measure (UM). Refer to **Table 4.2.** for conventions on UM. For some facilities, more than one scope is measured; for example, "Dormitory" is either number of people or number of square meters. **Table 4.2.** presents UM for both the scopes, where applicable.

4.4.1.4. Remainder of the Form.

- Make certain that all individual building entries add up to the entries in the Requirement/ Assets block. Show the category code, the nomenclature, the building number, the scope currently used, the total building scope, the year built, the condition code, the type of construction, and disposition or remarks.
- The type of construction should state whether it is wood, metal, or masonry. Do not state permanent or temporary.
- For substandard, show in the remarks column the total space to be disposed of by this project. Show the totals for condition code 2 and condition code 3 space. Do not list on this form any existing space or buildings that were previously committed for disposal by prior MILCON projects.

- If space is used for a different category code than that of the project requested, but will eventually be used for the category code of the requested project, do not show it in the Requirement/Assets block, but list it under "Other Facilities to be Used, Not Included in Above."
- Under "Other Related Actions," show data for any buildings or facilities that are in the way of the project being requested and are to be demolished or relocated. Also include building data on any other action related to or generated by the requested project that are not already covered in other entries on the form.
- For any existing facility that is to be redesigned or converted, show the specific intended use. Use of the words "to be used for other base functions" is not adequate.
- Also provide detailed information on the total base requirement (by category code) versus existing base assets for the function to which the existing facility is to be redesignated or converted. Completely justify any "domino" effects. Explain any entry on this form that differs from information shown on the latest USAF Real Property Inventory Detail Sheet.

4.5. Single Line Drawing. A single line drawing showing the floor plan for the proposed project is required as a part of the project document submittal. Prepare a single line drawing on the DD Form 1391c. Make the drawing simple and legible, and include a floor plan of the structure showing room use, building dimensions, and gross square meters.

4.6. Site Plan. A site plan showing how the project relates to adjoining facilities is also a required document accompanying the DD Form 1391 submittal package. Identify the project site plan on the DD Form 1391c as shown in figure 4.18. Include street names and building numbers on the site plan. Show only immediate areas involved in the project. If a project replaces or consolidates a function that is presently scattered throughout the base, the plan must show the locations of all facilities that will be released from the function or demolished due to consolidation. Identify large pavement areas and main utilities lines.

4.7. Location Plan. A location plan showing project location on a reduced base layout plan should also be included on the DD Form 1391c.

4.8. Certificate of Compliance for Critical Planning Actions. A Certificate of Compliance for Critical Planning Actions must be completed for each MILCON project, as discussed in **Chapter 1**. The format is shown in **Figure 4.19.**. This certificate shows that the installation has accomplished the required planning actions to bring the MILCON project into compliance with environmental and other regulations. Signed certificates of compliance are not required for Air Staff submittal, but they should be available at the MAJCOM level. Air Staff may require a review of these documents on a case-by-case basis. The following paragraphs, listed in the same order as on the certificate, briefly describe the requirement being certified. If more detailed information is required, the reader must go to the referenced Instruction.

4.8.1. Environmental Impact Analysis Process (EIAP). Installations must have completed this process, or have it underway for each MILCON project, at the time the project is submitted to the MAJCOM. Installations cannot make an irrevocable commitment of resources until the EIAP is complete. See AFI 32-7061, *The Environmental Impact Analysis Process.*

4.8.2. Wetlands. By the time projects are submitted to the MAJCOM, installations must have completed or have underway, for each MILCON project that constructs a new facility or modifies an exist-

ing facility, the actions necessary to comply with Executive Order 11990, *Protection of Wetlands*. See AFI 32-7064, *Integrated Natural Resources Management* and AFI 32-7061, *The Environmental Impact Analysis Process*. Additionally, before undertaking any projects in wetlands, installations must arrange for qualified experts to prepare a "Finding of No Practicable Alternative," if required, and submit it to the MAJCOM for subsequent transmittal to HQ USAF/ILEV, who will request approval from SAF/MIQ.

4.8.2.1. Special Permits. Projects with potential impacts to wetlands may require special permits and authorization. Installation program managers must contact the nearest office of the US Army Corps of Engineers prior to initiating any actions affecting wetlands.

4.8.3. Flood Plains. Installations must follow the criteria in AFI 32-7064 to construct a new facility or to modify or rehabilitate an existing facility. By the time these projects are submitted to the MAJCOM, installations must have completed or have underway the actions necessary to comply with Executive Order 11988, *Flood Plain Management.* Additionally, before undertaking any projects in flood plains, installations must arrange for qualified experts to prepare a "Finding of No Practicable Alternative," if required, and submit it to the MAJCOM for subsequent transmittal to HQ USAF/ILEV, who will request approval from SAF/MIQ.

4.8.3.1. Special Permits. Projects with potential impacts to flood plains may require special permitting and authorization. Installation program managers must contact the nearest office of the US Army Corps of Engineers prior to initiating any actions affecting flood plains.

4.8.4. Coastal Zone Management. Installations must follow the guidance contained in AFI 32-7064.

4.8.5. Coastal Barrier Resources. Installations must follow the guidance contained in AFI 32-7064.

4.8.6. Threatened and Endangered Species. Installations must make sure that any activities they carry out do not jeopardize the continued existence of threatened or endangered species (plant or animal) or result in the destruction of critical habitat. Installation staffs must consult the US Fish and Wildlife Service, according to Section 7 of the *Endangered Species Act,* for actions potentially affecting threatened or endangered species. Further guidance is contained in AFI 32-7064.

4.8.6.1. Survey. Early in the project development stage, installations must obtain the services of a qualified individual to survey the area for potential effects on threatened or endangered species. Information on the project's potential for affecting threatened or endangered species or critical habitats must be provided in the environmental impact analysis process.

4.8.7. Cultural Resources. As part of the planning and design for construction projects, installations must have the area of potential effect surveyed for historic buildings, archaeological sites, and other cultural resources. The survey must be performed by someone qualified in identifying cultural resources and evaluating eligibility for listing in the National Register of Historic Places. Further guidance is contained in AFI 32-7065, *Cultural Resources Management.*

4.8.7.1. Survey Results. Installations must report survey results, regardless of the findings, to the State Historic Preservation Officer (SHPO) for consultation in accordance with Section 106 of the *National Historic Preservation Act.* Installations may require further consultation with the Advisory Council on Historic Preservation (a Federal agency), depending on the finding of the

SHPO. This process must begin early in the planning and design phase for construction projects, because actual construction cannot begin until the appropriate steps have been performed.

4.8.7.2. Archaeological Sites. Installations must be aware of the requirement to stop work for 30 days after the inadvertent discovery of objects as defined in the *Native American Graves Protection and Repatriation Act of 1991* and must include provisions in construction contracts for a possible delay in areas where inadvertent discovery is possible. Additionally, construction contracts should include provisions to comply with the Archeological Resources Protection Act and the Antiquities Act.

4.8.8. Interagency and Intergovernmental Coordination. Installations must submit to state and local review agencies data on proposed construction projects and real property acquisition plans that may affect local, regional (area-wide) and state community plans, programs, and projects, as outlined in AFI-32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning.*

4.8.9. Environmental Permits.

4.8.9.1. Environmental Compliance. Permits required by applicable federal, state, interstate, or local regulations must be obtained for MILCON projects that emit or generate pollutants. For example, permits may be required for the construction or modification of drinking water systems, and when installing and removing underground storage tanks. Applicable federal laws include the *Clean Air Act,* 42 U.S.C. 7491; the *Clean Water Act,* 33 U.S.C. 1251; the *Resource Conservation and Recovery Act,* 42 U.S.C. 6901; and the *Safe Drinking Water Act,* 42 U.S.C. 300.

4.8.9.2. Permits. Installations must obtain environmental permits required for MILCON projects, or make certain that the appropriate government contractor has obtained the required permits. New facilities emitting air pollutants may require New Source Review or Prevention of Significant Deterioration permits/approvals from state or local regulators. The base environmental staff must initiate negotiations with local permitting authorities to ensure enough funds are included in the project to meet all requirements.

4.8.10. Potentially Regulated Substances at Existing Sites. Before alterations to an existing structure can begin, installations will survey the structure to find out whether hazardous or toxic substances, and/or other regulated substances (non-hazardous special or municipal) are present. These substances include but are not limited to asbestos, lead-based paint, polychlorinated biphenyls, ozone-depleting substances, radon, POL (petroleum, oils, or lubricants), organics (tree stumps, etc.), and construction debris. If these materials are present, they must be removed, handled, and disposed in accordance with applicable environmental regulations. The base bioenvironmental engineer and ILE environmental flight must coordinate design plans before alterations can begin.

4.8.11. Radon at New Construction. Installations must determine if a proposed construction site is likely to generate radon gas, and include appropriate measures in design.

4.8.12. Installation Restoration Program (IRP). Installations must make sure that siting and construction will not adversely affect IRP activities and that there are no land use constraints impacting siting and construction.

4.8.13. Air Pollutants. Installations must obtain construction and operating permits for air pollution sources. New facilities emitting air pollutants may require New Source Review or Prevention of Significant Deterioration permits/approvals from state or local regulators. Installations must ensure that

the facility designs incorporate appropriate pollution control technology, and they must perform a conformity determination, if required, according to AFI 32-7040, *Air Quality Compliance.*

4.8.14. Solid and Hazardous Wastes. Installations must apply for and obtain construction and operating permits for facilities that will be used for managing solid and hazardous wastes.

4.8.15. Underground Storage Tanks (UST). Installations must apply for and obtain construction and operating permits for installing, upgrading, or removing underground storage tanks, if required by the state regulatory agencies. Installations must notify regulatory agencies before underground storage tanks are removed. For new tank installations, installations must obtain, from the installer, a certification that the underground storage tank was properly installed according to industry codes. Follow the guidance in AFI 32-7044, *Storage Tank Compliance* and 40 CFR 280.10, *Underground Storage Tanks.*

4.8.16. Air Installation Compatible Use Zone (AICUZ). Each installation with flying activity will conduct a study according to AFI 32-7063, *Air Installation Compatible Use Zone Program*, and make sure that the siting and design of all facility projects conform with AFI 32-1021, *Planning and Programming of Facility Construction Projects.*

4.8.17. Base Comprehensive Plan (BCP). Installations must site all facility projects in conformance with the base comprehensive plan. Further guidance on base comprehensive planning is contained in AFI 32-7061, *The Environmental Impact Analysis Process* and AFI 32-7062, *Air Force Comprehensive Planning.*

4.8.18. Airfield Clearance. Installations must ensure that all facilities and structures conform to the airfield and airspace clearance criteria contained in AFI 32-1026, *Planning and Design of Airfields*.

4.8.18.1. Waivers. Installations must obtain a waiver from their MAJCOM for any intrusion which will violate airfield criteria. Installations must coordinate waivers affecting terminal instrument procedures (TERPs) with the TERP authority (AFI 13-204, *Terminal Instrument Procedures (TERPs)*), refer waivers for projects in the clear zone or accident potential zones I or II to the MAJCOM staff, and maintain a record of all such waivers in the appropriate base comprehensive plan.

4.8.19. Air Space Use. Installations must coordinate projects that will affect the use of navigable air space with the proper Federal Aviation Administration (FAA) region through the regional Air Force representative (See AFIs 13-201, *US Air Force Airspace Management,* and 32-7060 for procedures).

4.8.20. Explosive Facilities Quantity-Distance (Q-D) Siting. All facilities used for storage, handling, testing, and maintenance of explosives, or explosive-related items, must be reviewed by the Air Force Safety Agency (AFSA/SEWV), and approved by the Department of Defense Explosives Safety Board (DDESB). Other MILCON non-explosive-related facilities located within an identified explosive quantity-distance zone may also require approval by the Explosives Safety Board.

4.8.20.1. Clearances. Installations must identify all projects requiring explosive safety siting approval and submit them to the MAJCOM for transmittal to AFSA/SEV, who will submit them to the Explosives Safety Board. Explosives Safety Board siting safety approval must be obtained by the MAJCOM before the construction contract is awarded. Instructions on how to prepare and submit these projects are contained in AFI 91-201, *Explosive Safety Standards*.

4.8.21. Airbase Survivability, Conventional Hardening, Chemical Protection Levels and Priorities, Camouflage, Concealment and Deception. When constructing or substantially altering or

renovating facilities, installations must follow the airbase survivability criteria contained in *War Mobilization Plan 1, Annexes J and L.*

4.8.22. Allowance for Physically Handicapped. New facilities shall be designed and constructed to be readily accessible to and useable by handicapped persons. Alterations to existing facilities shall be designed and constructed, to the maximum extent feasible, to be readily accessible to and usable by handicapped persons. When accessibility cannot be achieved without causing a substantial impairment of significant historic features, forward a request for modification or waiver of access standards to HQ USAF/ILEC who will in turn forward it to ASD(MRA&L), or designee, for approval. For further guidance, see DoD Directive 1020.1, Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of Defense.

4.8.23. Real Estate Requirements. Installations must determine whether any proposed construction project requires the acquisition of real estate interests and what such interests would cost. Refer to AFI 32-9001 for additional information.

4.8.24. Force Protection. Delivering facilities that provide a safe and secure living and working environment in potentially hostile areas shall be a primary consideration in the planning, programming, and design of Air Force facilities. Analysis conducted during the planning and programming phases will include assessing potential threats, reviewing design opportunities and constraints, and integrating protective strategies in the facility and its immediate surroundings. Numerous references governing threat assessment, force protection, and physical security will guide programmers and designers in the preparation of facility criteria and final plans and specifications. All aspects of threat assessment and security engineering should be closely coordinated with security police agencies. In addition, if warranted by the assessment, incorporate crime prevention through environmental design (CPTED) methods (see local Security Police). Refer to AFH 32-1084, *Air Force Standard Facility Requirements*, and AFMAN 32-1071 (Vol. 1, 2, 3), *Security Engineering*, for additional information.

4.8.25. Excess Space. Commanders must certify that excess space already existing cannot be used to satisfy the requirement.

4.8.26. Temporary Facilities Incident to Construction. Certification must be made that those temporary facilities required incident to MILCON will be razed upon completion of the project.

4.8.27. Command, Control, Communications and Computer (C4) Systems Sup port. The Base Civil Engineer (BCE) and C4 Systems staff officers must coordinate their efforts to ensure that facility projects are programmed early enough to be completed in time to meet C4 systems facilities equipment delivery and installation schedules. Ensure the base communications planner and the Systems Telecommunications Engineering Manager (STEM) review the construction plan so that communications requirements are adequately documented and the base's C4 system's blueprint is appropriately updated. Refer to AFI 33-103, C4 Systems Requirements Development and Processing and AFI 33-104, Base-Level Planning and Implementation, for additional guidance.

4.8.28. Energy Conservation. All MILCON projects will be designed/constructed to meet the minimum energy performance standards as specified in 10 CFR 435, *Energy Conservation Voluntary Performance Standards for New Buildings,* and ETL 94-4, *Energy Usage Criteria for Facilities in Military Construction Program.* All MILCON projects will be metered as specified by ETL 94-2, *Utility Meters in New and Renovated Facilities.*

4.8.29. Seismic Considerations. Installations must implement the requirements specified in Public Law 95-124, *Earthquake Hazards Reduction Act,* and Executive Order 12941, *Seismic Safety of Exist-*

ing Federally Owned or Leased Buildings, for seismic life safety sufficiency evaluations. Seismic deficiencies, structural or nonstructural, identified by the seismic evaluation shall be mitigated in the project that triggers the evaluation.

4.9. Economic Analysis Certification. Economic evaluation certification is required for all projects over $2 million and any projects less than $2 million justified solely for economic reasons. Refer to **Chapter 5** for detailed guidance on how to perform an economic analysis for a MILCON project. The format of the Certificate of Satisfactory Economic Analysis is shown in **Figure 4.20.**

4.10. List of Equipment. A separate DD Form 1391c is needed for projects supporting electronic systems or the procurement of equipment, including RADAR, communications, data processing, navigational aids, or other equipment. On the DD Form 1391c, state the specific HQ USAF document that approved the system or equipment and provide equipment procurement information. A typical Procurement of Equipment information list is shown in **Figure 4.21.** Coordinate with the base or installation communications officer to ensure the necessary provisions for communications are included in the overall facility planning and design.

4.11. Supporting Photographs. Photographs that clearly show objectionable existing conditions may be included in the project submittal package for replacement, deficiency replacement, or alteration projects. Label photographs on the front lower right corner with the base and project name. Type the condition description on the back of the photographs. Photographs must clearly show a need for the project and aid in its justification. Pictures of crowded conditions or structural failures will support the project; pictures of dirty walls, broken windows, and chipped tile will only cause criticism of the base engineer for poor maintenance, and will detract from the project need. Prints of these photos will be reproduced on the DD Form 1391c.

4.12. Aircraft Parking Plan. For aircraft parking projects, show on a separate DD Form 1391c the program increments of paving, location of hydrant fuel outlets, and a silhouette of each aircraft type drawn to scale. Show spaces provided in existing and programmed docks and hangars. The aircraft parking plan should show the total base requirements. This includes all parking spaces required for host, tenant, ANG, and Air Reserve aircraft.

4.13. NATO Eligibility Data Sheet. NATO Eligibility and Data Sheet, as shown in **Figure 4.22.**, is required for projects in NATO countries.

Figure 4.1. Portion of DD Form 1391 Showing Major Subcategories of Primary Facility.

1. COMPONENT	FY 19___ MILITARY CONSTRUCTION PROJECT DATA (Computer Generated)			2. DATE
3. INSTALLATION AND LOCATION		4. PROJECT TITLE LIQUID FUEL PUMP STATION		
5. PROGRAM ELEMENT	6. CATEGORY CODE 125-977	7. PROJECT NUMBER	8. PROJECT COST ($000) 1,100	
9. COST ESTIMATE				
ITEM	U/M	QUANTITY	UNIT COST	COST ($000)
LIQUID FUEL PUMP STATION PUMP STATION DISTRIBUTION SYSTEM	LS EA LS	1	678,000	900 (678) (222)

Figure 4.2. Portion of DD Form 1391 Showing Addition and Alteration as Separate Line Items.

1. COMPONENT	FY 19___ MILITARY CONSTRUCTION PROJECT DATA (Computer Generated)			2. DATE
3. INSTALLATION AND LOCATION		4. PROJECT TITLE ADD TO AND ALTER REGIONAL OPERATIONS CONTROL CENTER		
5. PROGRAM ELEMENT	6. CATEGORY CODE 141-000	7. PROJECT NUMBER	8. PROJECT COST ($000) 4,800	
9. COST ESTIMATE				
ITEM	U/M	QUANTITY	UNIT COST	COST ($000)
ADD/ALTER REGIONAL OPERATIONS CONTROL CENTER ADDITION ALTERATION	SM SM SM	4,150 (2,100) (2,150)	1290.00 500.50	3,735 (2,709) (1,026)

Figure 4.3. Portion of DD Form 1391 Showing Different Category Code Facilities Under Primary Facility.

1. COMPONENT	FY 19___ MILITARY CONSTRUCTION PROJECT DATA (Computer Generated)			2. DATE
3. INSTALLATION AND LOCATION		4. PROJECT TITLE TACTICAL AIR SUPPORT COMPLEX		
5. PROGRAM ELEMENT	6. CATEGORY CODE 141-753	7. PROJECT NUMBER	8. PROJECT COST ($000) 1,600	
9. COST ESTIMATE				
ITEM	U/M	QUANTITY	UNIT COST	COST ($000)
TACTICAL AIR SUPPORT COMPLEX	LS			1,289
SQUADRON OPERATIONS FACILITY	SM	(2,025)	489.00	(990)
ADDN TO AIRCRAFT MAINTENANCE FACILITY	SM	(400)	448.50	(179)
ALTERATION OF AIRCRAFT MAINTENANCE	SM	(1,680)	71.50	(120)

Figure 4.4. Portion of DD Form 1391 Showing Supporting Facilities Items.

1. COMPONENT	FY 19___ MILITARY CONSTRUCTION PROJECT DATA (Computer Generated)			2. DATE
3. INSTALLATION AND LOCATION		4. PROJECT TITLE		
5. PROGRAM ELEMENT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST ($000)	
9. COST ESTIMATE				
ITEM	**U/M**	**QUANTITY**	**UNIT COST**	**COST ($000)**
(PRIMARY FACILITIES WILL COME FIRST)				
SUPPORTING FACILITIES				
UTILITIES	LS			( )
PAVEMENTS	SM			( )
SITE IMPROVEMENTS	LS			( )
FIRE PROTECTION SYSTEM	LS			( )
ASBESTOS REMOVAL	SM			( )
COMMUNICATIONS SUPPORT	LS			( )
DEMOLITION	SM			( )
LEAK DETECTION SYSTEM	LS			( )
SOIL REMEDIATION	LS			( )
PARKING	LS			( )
SPECIAL FOUNDATIONS	LS			( )
CORRECT CROSS-CONNECTIONS	LS			( )

Figure 4.5. Portion of DD Form 1391 Showing Format for Block 9.

1. COMPONENT	FY 19___ MILITARY CONSTRUCTION PROJECT DATA (Computer Generated)			2. DATE
3. INSTALLATION AND LOCATION		4. PROJECT TITLE CONSOLIDATED DINING HALL		
5. PROGRAM ELEMENT 1.18.96	6. CATEGORY CODE 722-351	7. PROJECT NUMBER FNWZ 96-3006	8. PROJECT COST ($000) 6,900	

9. COST ESTIMATE

ITEM	U/M	QUANTITY	UNIT COST	COST ($000)
CONSOLIDATED DINING HALL	SM	3,002	1628.20	4,888
SUPPORTING FACILITIES				1,276
UTILITIES	LS			(391)
SITE IMPROVEMENTS	LS			(253)
PAVEMENTS	LS			(574)
DEMO EXISTING FACILITIES	SM			(58)
SUBTOTAL				6,164
CONTINGENCY (5%)				308
TOTAL CONTRACT COST				6,472
SUPERVISION, INSPECTION, AND OVERHEAD (6%)				388
TOTAL REQUEST				6,860
TOTAL REQUEST (ROUNDED)				6,900
EQUIPMENT FROM OTHER APPROPRIATIONS		(Non-add)		300

Figure 4.6. Examples of Description of Proposed Construction.

EXAMPLES OF DESCRIPTION OF "PROPOSED CONSTRUCTION" STATEMENTS

Communications Operations Center: Poured concrete walls with seismic pilasters, concrete floor slab and caisson foundations, steel beam and column frame and metal deck/built-up roof system with semi-temporary metal partitions for administrative space. Includes communications-electronics equipment operation and maintenance space; administration, operations control center, storage, toilets, mechanical equipment room, support space utilities. Air Conditioning - 88 kW.

Add to and Alter Aircraft Maintenance Facilities: Preengineered metal buildings, concrete floor slab and foundation, truss and column steel frame and metal roof system to match existing metal facilities; water and oil pollution control system; extend access apron; provide adequate fire protection and correct ventilation and other Occupational Safety and Health (OSH) deficiencies. Upgrade electrical system, install monorail, provide female latrines, and widen doors. Support space and utilities.

Composite Medical, Staging, and Dental Facility: Poured concrete on drilled pier foundations and shear walls, structural steel frame, concrete floors and roof on metal decking, and hospital-grade interior finishes. Three-floor facility includes a 171-bed acute care (in-patient) hospital, 150-bed capacity aeromedical staging facility, 50-chair dental clinic, in- and out-patient clinics, nursing units, laboratories, radiology, emergency rooms, pharmacy, residency programs space, food service, medical supply, staff, administrative space, toilets, mechanical equipment support space, and all necessary utilities. Air Conditioning - 4,212 kW.

Alter Unaccompanied Enlisted Personnel Housing: Convert to semiprivate/private baths; replace existing central ventilation with fancoil system; extend chilled water lines from existing service; install ceiling insulation; replace window sash and add solar-shield storm windows; replace doors and lockers to correct OSH deficiencies; install carpeting in halls and lounges; convert central latrines to one storage area and one living quarters in each floor; reseal 400 SM parking area; replace transformer; connect to energy monitoring and control system; and landscape. Includes bedrooms, baths, closets, lounges, centralized storage, laundry, support space, and utilities. Grade Mix: 528 E1-4; 60 E5-6; 28 E7-9. Air Conditioning - 211 kW.

Figure 4.7. Sample DD Form 1391 Showing Format for Block 11.

1. COMPONENT	FY 19___ MILITARY CONSTRUCTION PROJECT DATA			2. DATE
3. INSTALLATION AND LOCATION		4. PROJECT TITLE		
5. PROGRAM ELEMENT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST ($000)	
9. COST ESTIMATE				
ITEM	U/M	QUANTITY	UNIT COST	COST ($000)

10. DESCRIPTION OF PROPOSED CONSTRUCTION

11. REQUIREMENT: _____SM; ADEQUATE_____ SM; SUBSTANDARD _____SM

- TOTAL REQUIREMENT FOR THIS 6-DIGIT CAT. CODE NEEDED TO MEET END POSITION MISSION
- CONDITION CODE 1 ASSETS
- CONDITION CODE 2 & 3 ASSETS

UNITS OF MEASURE (U/M) TO BE CONSISTENT WITH EXISTING FAC/DEFICIENCY DETAIL DATA SHEET

PROJECT: ANSWER QUESTION - WHAT DOES THIS PROJECT PROVIDE?
EXAMPLE - CONSTRUCTION OF A NEW AIRCRAFT HANGAR

REQUIREMENT: ANSWER QUESTION - WHY DOES AF REQUIRE THE PROJECT?
IN GENERAL, THE FACT THAT CURRENT SITUATION IS SUBSTANDARD IS NOT A BASIS FOR THE REQUIREMENT.

CURRENT SITUATION: TELL HOW IT IS BEING DONE NOW AND CONDITIONS. THIS SHOULD SUPPORT THE REQUIREMENT. THE LAST SENTENCE GIVES THE DISPOSITION OF EXISTING FACILITIES.
I.E., - DEMOLITION, ETC.

IMPACT IF NOT PROVIDED: TELL TO WHAT EXTENT THE MISSION WOULD BE AFFECTED IF THE PROJECT WERE NOT APPROVED.

ADDITIONAL: INCLUDE AN ECONOMIC ANALYSIS STATEMENT FOR EACH PROJECT. USE THIS SPACE TO STATE NATO ELIGIBILITY. THIS WILL BE ENTERED ON THE DD FORM 1391C FOLLOWING THE FRONT PAGE OF FORM 1391.

DD Form 1391, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**
(Computer Generated)

Figure 4.8. Examples of Requirement Statements.

EXAMPLES OF "REQUIREMENT" STATEMENTS

Fire Station: A properly sized and configured fire station is required to provide fire protection and fire fighting services for base facilities as well as aircraft crash/rescue fire fighting. The station will house all fire fighting equipment and crews, a central fire alarm system, command and control, and 24-hour crew quarters.

Aircraft Central Purpose Maintenance Shop: Adequate aircraft maintenance space for fabrication and structural repair, cleaning and degreasing operations, hydraulics repair, battery shop, wheel and tire shop, maintenance management and storage of aircraft parts to support assigned C-5 and C-141 aircraft. Space is also required to support field-level non-destructive inspection (NDI) of aircraft components.

Underground Fuel Storage Tanks: This is a Level II environmental compliance requirement. Air Force Policy is to bring regulated tanks into compliance with Federal Law (40 CFR 280.21) by December 1998. This law requires underground tanks to have leak detection, corrosion protection and spill/overflow prevention systems to protect human health and the environment.

Aircraft Corrosion Control Facility: An adequate facility, properly sized and configured, is required for corrosion control on the various new mission aircraft. The aircraft will require spot painting and complete painting on a recurring basis. These aircraft also require complete washing periodically as well as prior to repainting. Support equipment also requires annual corrosion control. Effective corrosion control requires the use of chemical agents for proper cleaning, stripping, coating, and adhesion. If caustic agents (skin brighteners, paint removers, and acids) dry before rinsing, they become impossible to remove and promote rather than arrest corrosion.

Figure 4.9. Examples of Current Situation Statements.

EXAMPLES OF "CURRENT SITUATION" STATEMENTS

Upgrade Utility Systems: The utility lines were installed between 1930 and 1940. The sanitary sewer system has cracked and crushed lines, and there are cross-connects between sanitary sewer and storm mains. The cracked lines allow raw sewage to leak into the groundwater and storm water runoff to flood the sewage treatment plant. The raw sewage that enters the storm drains flows into the Alabama River. The gas and water lines may not be isolated due to inoperative valves. The steam lines leak, and the deteriorated insulation results in a constant loss of heat and energy.

Remove Underground Storage Tanks: The base has two Korean War vintage liquid fuel pumphouses with 12 50,000-liter underground fuel storage tanks and two 2,000-liter waste fuel storage tanks. The pumphouses are no longer required to meet the installation's fuel storage requirements. The 14 storage tanks are abandoned in place and are currently in violation of Title 16, Chapter 45, Montana Underground Storage Tank Rules for Tank Management and Operations. Nine of these tanks have been abandoned for approximately ten years, while five tanks were abandoned in August 1993. Accomplishment of this project will satisfy state environmental regulatory laws.

Base Engineering Complex: The existing Base Civil Engineering function is housed, for the most part, in 23 facilities constructed in 1941 to support facility maintenance practices at that time. The management building has been extensively modified with various additions to the extent that today there are unusable spaces within the interior floor plan. Very poor office arrangements and most importantly, the roof system is made up of different coverings and many different slopes making leaks difficult to locate and nearly impossible to repair. These leaks have damaged very expensive equipment. The shop and storage buildings cannot support a modern facility maintenance activity. In addition, zonal maintenance and reorganization will render them even more useless and inefficient. Nineteen buildings totaling 56,500 SM will be demolished upon completion of this project.

Figure 4.10. Examples of Impact if Not Provided Statements.

EXAMPLES OF "IMPACT IF NOT PROVIDED" STATEMENTS

Consolidated Fire Station: Response time will remain unacceptable and will continue to put the Scout, Atlas, and Titan Space Launch Programs, and over 190 facilities, at considerable risk. The continued use of substandard, deteriorated facilities will result in inefficient operations, higher maintenance costs, and unresponsive fire protection services. Fire protection personnel will continue to work in substandard, inefficient, and overcrowded facilities which will adversely impact their capability to provide fire protection to _____ AFB. A fire at the launch complex would continue to have a 9-minute head start due to the siting of existing stations. This could result in a greater impact to the mission.

Add to Satellite Processing Facility: DMSP and other payloads can no longer be processed and launched, and the 90-day call for the periodic 5-year or less replacement mission cannot be met. The impact of a one-day schedule slip on a DMSP spacecraft is $52,000. If failure occurs on the day of the launch, the additional cost of $237,000 is incurred. The impact of a deferred DMSP coverage on its primary mission, due to launch delay, is incalculable in terms of national importance.

Combat Arms Training and Maintenance Facility: Combat Arms Training and Maintenance (CATM) Personnel will continue to work in substandard, inefficient, and deteriorated facilities. Small arms weapons will continue to be stored in a geographically separated facility, adding to the inefficiency and reducing the proficiency of base personnel. Range activities will continue to operate in facilities that have little to non-existent utilities, lack adequate training capability, and provide a detrimental effect on the training mission of CATM.

Add/Alter Child Care Center: If facilities are not provided, families must continue to use expensive off-base programs or place children in unlicensed baby-sitting situations. The closest off-base centers are 5-6 kilometers away and are only open weekdays from 0630-1800. The cost is twice the rate of the Child Care Center. Families will have to expend an additional $2,500 per child per year plus travel expense to use off-base facilities. Since off-base center schedules are not consistent with shifts or long working hours of military personnel, they impose hardships on the military personnel forced to use them. With service members on call for duty continuously, it is imperative they have reliable, convenient, well-run, healthy and affordable child care facilities. The existing facility cannot provide this care to the number of children requiring it. Future demands will force more of our young enlisted and junior officer families to pay a higher price for off-base child care, further reducing any disposable income they may have.

Figure 4.11. Format for Block 12.

1. COMPONENT AIR FORCE	FY 1995 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
3. INSTALLATION AND LOCATION		
4. PROJECT TITLE		7. PROJECT NUMBER

12. SUPPLEMENTAL DATA:

a. Estimated Design Data:

1. Status:
   - a. Date design started — 93 July 01
   - b. Percent complete as of Jan 94 — 35%
   - c. Date 35% designed — 93 Oct 01
   - d. Date design complete — 94 Aug 01

2. Basis:
   - a. Standard or definitive design — yes
   - b. Where design was most recently used — Blue AFB

3. Total Cost (c) = (a) + (b) or (d) + (e) ($000)
   - a. Production of plans and specifications — 1,530
   - b. All other design costs
   - c. Total — 1,530
   - d. Contract — 1,020
   - e. In-house — 510

4. Construction start — 95 JAN

b. Equipment associated with this project will be provided from other appropriations: N/A

DD Form 1391c, DEC 76 **Previous Editions May Be Used Until Exhausted** **Page No.**
(Computer Generated)

Figure 4.12. AF Form 1178, Project Cost Estimate Summary.

FY PROJECT COST ESTIMATES SUMMARY						(Computer Generated)	
1. PDC NUMBER XUMU923007	2. PROJECT TITLE ADD/ALTER PHYSICAL FITNESS CENTER					3. DATE 930401	
4. MAJCOM SPC	5. BASE/STATE/INS CODE					6. ACF 1.36	
7. CONST START 970400	8. MTHS OF CONST 12		9. PG DATE 9410	10. CURRENT PA 4,100		11. EXCHANGE RATE	
12. PRIMARY FACILITIES	13. CAT CODE	14. SAF	15. CGF	16. U/M	17. SCOPE	18. UNIT COST	19. COST ($000)
PHYSICAL FITNESS CENTER	740-674	1.06		SM	1,100	1,850.00	2,035
PHYSICAL FITNESS CENTER	740-674	1.47		LS			850
20. PRIMARY FACILITY SUBTOTAL							2,885
21. SUPPORTING FACILITIES			22. CGF	23. U/M	24. SCOPE	25. UNIT COST	26. COST ($000)
UTILITIES			1.00	LS			175
SITE IMPROVEMENT			1.00	LS			85
PAVEMENTS			1.00	LS			125
DEMOLITION/DISPOSAL WOOD BLDG			1.09	SM	1,890	131.90	249
27. SUPPORTING FACILITY SUBTOTAL							634
28. PRIMARY + SUPPORT TOTAL (20 + 27)							3,519
29. CONTINGENCY (10 .0%)							352
30. TOTAL CONTRACT COST (28 + 29)							3,871
31. SIOH (6.0%)							232
32. TOTAL REQUEST (30 + 31)							4,103
33. TOTAL REQUEST ROUNDED							4,100
34. EQUIPMENT FROM OTHER APPROPRIATIONS							

AF Form 1178, NOV 88

Figure 4.13. AF Form 1178B, Project Cost Estimate Worksheet - Detail Cost Estimate.

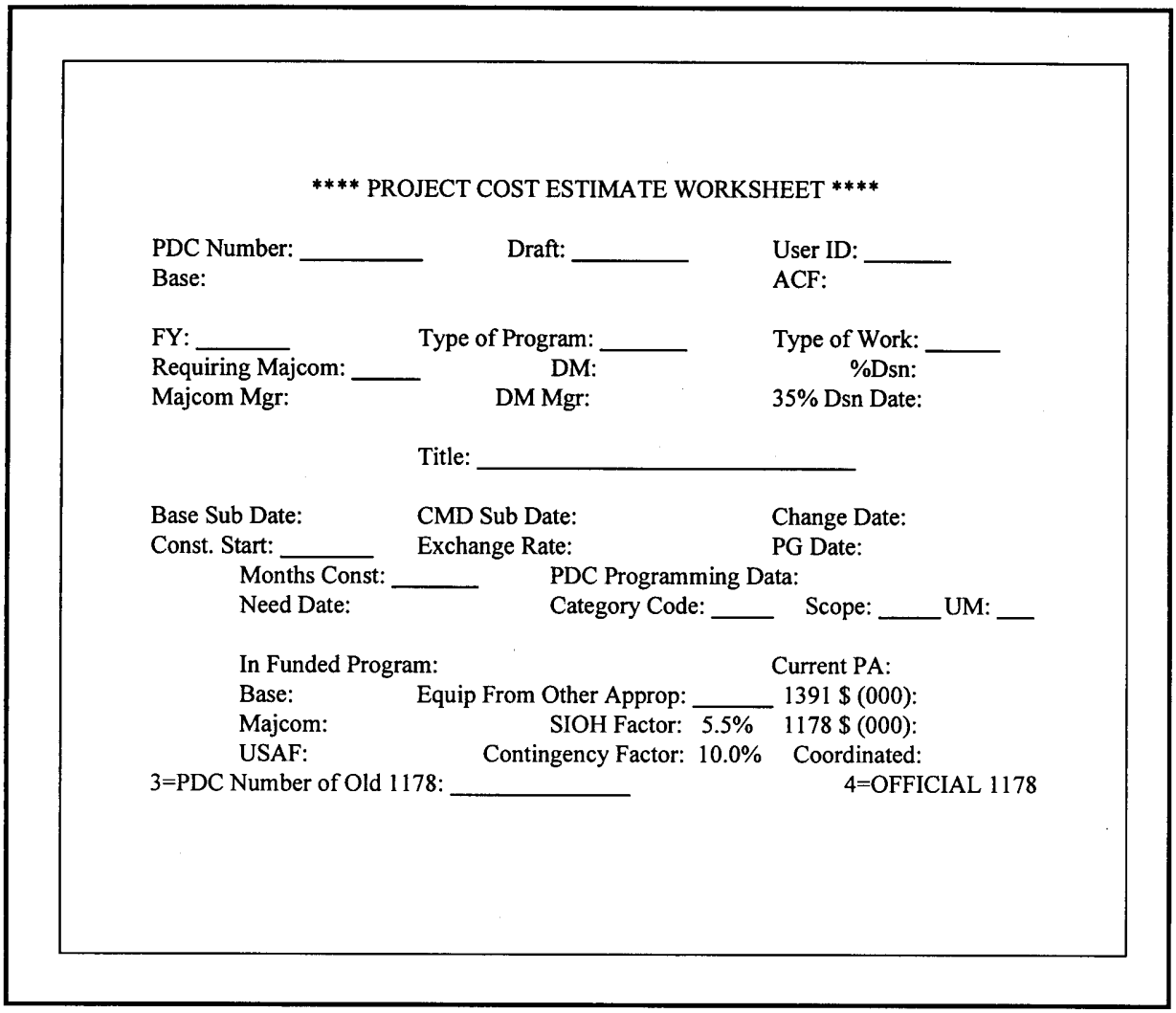
FY 97 PROJECT COST ESTIMATE WORKSHEET - DETAIL COST ESTIMATE				
1. PDC NUMBER XUMU923007	**2. PROJECT TITLE** ADD/ALTER PHYSICAL FITNESS CTR			**3. DATE** 930401
4. MAJCOM SPC	**5. BASE/STATE/INS CODE**			**6. ACF** 1.36
7. CONST START 970400	**8. MTHS OF CONST** 12	**9. PG DATE** 9410	**10. CURRENT PA** 4,100	**11. EXCHANGE RATE**
12. PRIMARY FACILITIES PHYSICAL FITNESS CENTER		**13. CAT CODE** 740-674	**14. SCOPE** 1,100	**15. EQUIP DOLLAR, OTHER APPN**

16. BUILDING UNIFORMAT SYSTEM	**($000)**	**17. SUPPORTING FACILITIES**	**($000)**
SUBSTRUCTURE	309	UTILITIES	175
SUPERSTRUCTURE	646	SITE IMPROVEMENTS	85
ROOFING	153	PAVEMENT	125
EXTERIOR CLOSURE	315	DEMOLISH BUILDINGS	249
INTERIOR CONSTRUCTION	104		
INTERIOR FINISHES	491		
SPECIALTIES			
PLUMBING	220		
H.V.A.C.	376		
SPECIAL MECHANICAL			
ELECTRICAL	222		
SPECIAL ELECTRICAL	52		
EQUIPMENT			
CONVEYING SYSTEMS			
UNIFORMAT SUBTOTAL	2,888		
OTHERS SUBTOTAL			

18. BUILDING TOTAL	2,888
19. SUPPORTING FACILITY SUBTOTAL	634
20. PRIMARY + SUPPORT TOTAL	3,522
21. CONTINGENCY (10 .0%)	352
22. TOTAL CONTRACT COST	3,874
23. SIOH (6.0%)	232
24. TOTAL REQUEST	4,106
25. TOTAL REQUEST ROUNDED	4,100

AF Form 1178B, NOV 88

Figure 4.14. Project Cost Estimate Worksheet.



**** PROJECT COST ESTIMATE WORKSHEET ****

PDC Number: _____ Draft: _____ User ID: _____
Base: ACF:

FY: _____ Type of Program: _____ Type of Work: _____
Requiring Majcom: _____ DM: %Dsn:
Majcom Mgr: DM Mgr: 35% Dsn Date:

Title: _____

Base Sub Date: CMD Sub Date: Change Date:
Const. Start: _____ Exchange Rate: PG Date:
Months Const: _____ PDC Programming Data:
Need Date: Category Code: _____ Scope: _____ UM: ___

In Funded Program: Current PA:
Base: Equip From Other Approp: _____ 1391 $ (000):
Majcom: SIOH Factor: 5.5% 1178 $ (000):
USAF: Contingency Factor: 10.0% Coordinated:
3=PDC Number of Old 1178: _____ 4=OFFICIAL 1178

Figure 4.15. Primary Facility Data.

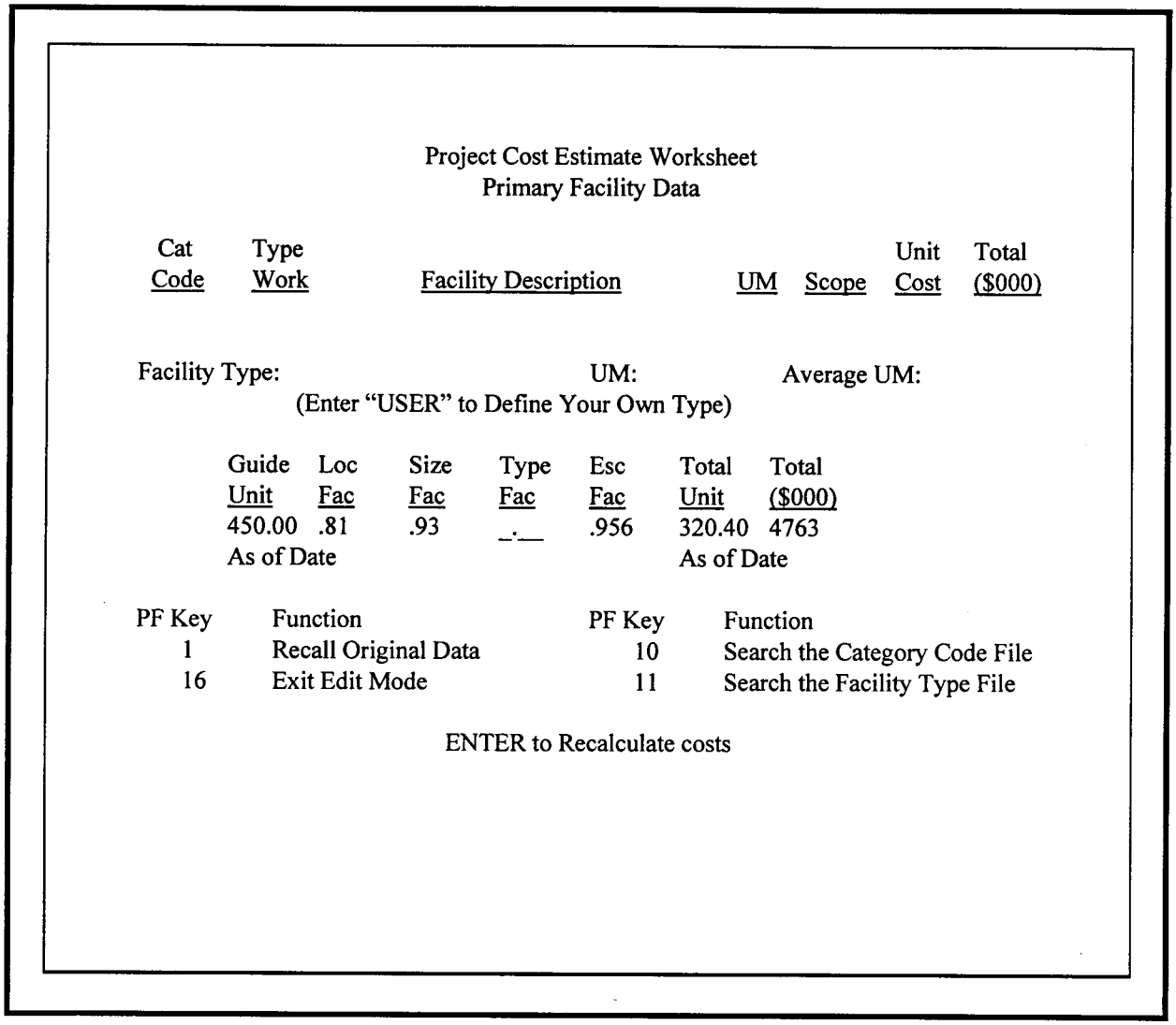
Project Cost Estimate Worksheet
Primary Facility Data

Cat Code	Type Work	Facility Description	UM	Scope	Unit Cost	Total Cost
442-758	NEW	BASE SUPPLIES & EQUIP WHSE	SM	14700	320.00	4704

Total Primary Facility Cost 4704
Total Project with 2 Support 5.0% Contingency & 6.0% 5700

6=PDC Number of Old 1178

Figure 4.16. Primary Facility Edit Data.



Project Cost Estimate Worksheet
Primary Facility Data

Cat Code	Type Work	Facility Description	UM	Scope	Unit Cost	Total ($000)

Facility Type: UM: Average UM:
(Enter "USER" to Define Your Own Type)

Guide Unit	Loc Fac	Size Fac	Type Fac	Esc Fac	Total Unit	Total ($000)
450.00	.81	.93	_.__	.956	320.40	4763
As of Date					As of Date	

PF Key	Function	PF Key	Function
1	Recall Original Data	10	Search the Category Code File
16	Exit Edit Mode	11	Search the Facility Type File

ENTER to Recalculate costs

Figure 4.17. Existing Facility/Deficiency Detail Data Sheet.

1. COMPONENT AIR FORCE	FY 1996 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
3. INSTALLATION AND LOCATION		
4. PROJECT TITLE		7. PROJECT NUMBER

EXISTING FACILITY/DEFICIENCY DETAIL DATA SHEET

Scope of FY95 Request: 31,577 SM

CAT CODE: Aircraft Shop (XXX.XXX)

Mission: Where applicable, cite mission from current PD.

Requirements/Asset Computation		Total SM	No. of Buildings
a.	Total Requirement	4,541	3
b.	Existing Substandard	3,249	2
c.	Existing Adequate	1,383	2
d.	Funded, not in inventory	0	0
e.	Adequate Assets (c&d)	1,383	1
f.	Included in FY (84) Program	0	0
g.	Deficiency (a-e-f)	3,158	2

Requirement: Show detailed calculations. Indicate source of information such as AFM 86-2. Computations should justify the total requirement and not just show arithmetical calculation.

CAT CODE	NOMENCLATURE	BLDG. NO.	SCOPE USED (SM)	TOTAL BLDG (SM)	COND TYPE YR/CODE/CONST	REMARKS
b. Existing Substandard 32,489 SM						
211-152	Shop Aircraft	218	91	4,266	1943 3 Wood	Disposal
211-152	Shop Aircraft	5	3,158	3,158	1941 2 Mas	This Project Alter
	TOTAL SUBSTANDARD		3,249			
c. Existing Adequate 13,828 SM						
211-152	Shop Aircraft	39	1,308	1,308	1944 1 Metal	Retain
211-152	Shop Aircraft	100	75	33,137	1942 1 Mas	Retain
	TOTAL ADEQUATE		1,383			

DD Form 1391c, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**
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Figure 4.17. Continued.

1. COMPONENT AIR FORCE	FY 1996 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
3. INSTALLATION AND LOCATION		
4. PROJECT TITLE		7. PROJECT NUMBER

EXISTING FACILITY/DEFICIENCY DETAIL DATA SHEET

CAT CODE	NOMENCLATURE	BLDG. NO.	SCOPE USED (SM)	TOTAL BLDG (SM)	COND TYPE YR/CODE/CONST	REMARKS
g. Deficiency 31,577 SM						
211-152	Shop Aircraft	5	3,158	3,158		This request Add/Alter
Other Facilities to be used - not included above						
218-712	Shop AGE	76	100	1,000	1955 1 Metal	Connect to Shop, A/C G.P. in FY84 MCP
Other Related Actions						
442-758	Warehouse		2,000	2,000	1948 3 Metal	In way of construction of FY85 project. Demolished

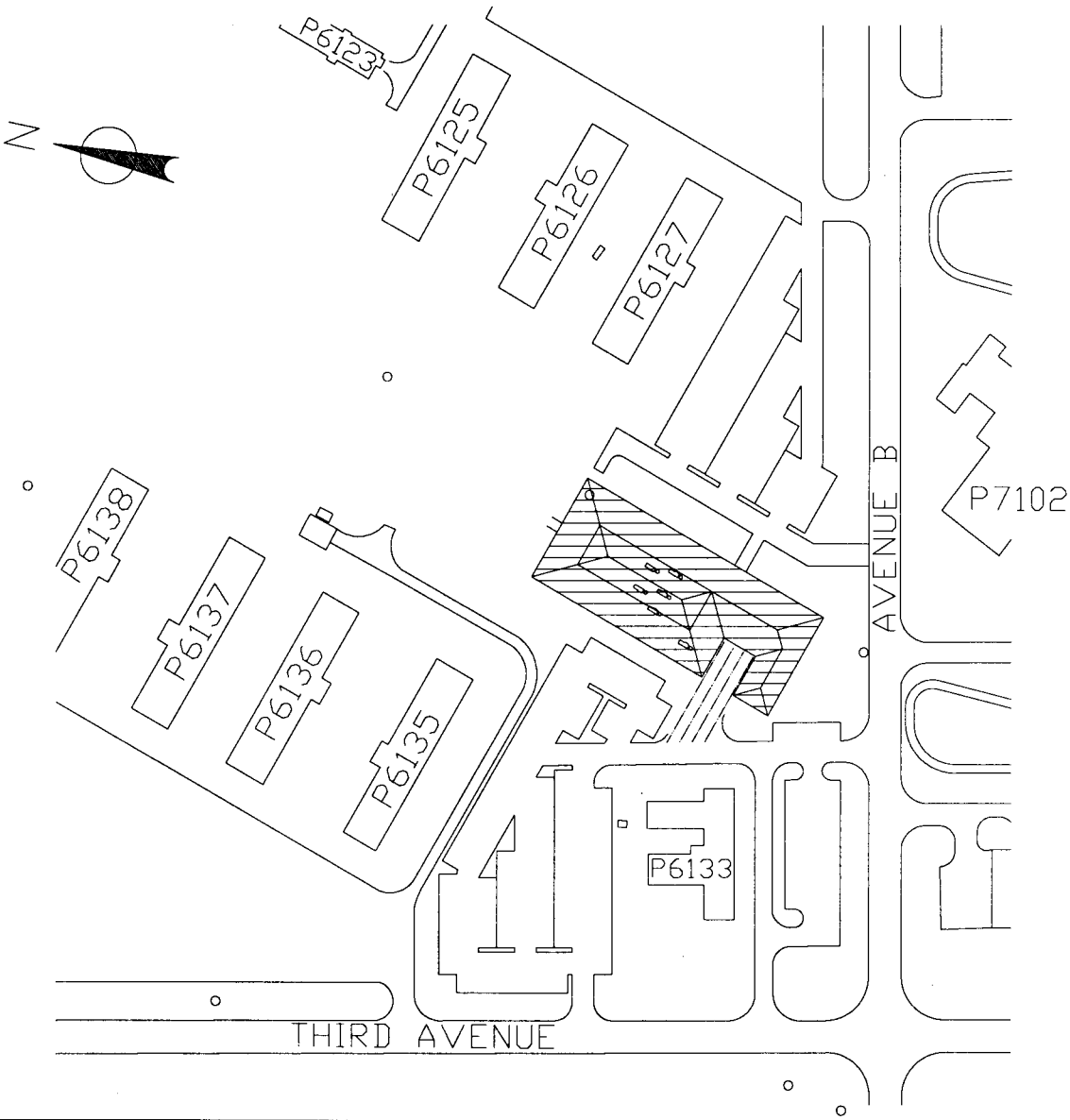
NOTE: When projects cause a "domino" effect on the use of other existing facilities, show the final disposition or use of all facilities affected.

DD Form 1391c, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**
(Computer Generated)

Figure 4.18. Site Plan.

1. COMPONENT AIR FORCE	FY 1996 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
3. INSTALLATION AND LOCATION		
4. PROJECT TITLE		7. PROJECT NUMBER

SITE PLAN



DD Form 1391c, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**
(Computer Generated)

Figure 4.19. Certificate of Compliance for Critical Planning Actions.

CERTIFICATE OF COMPLIANCE
FOR CRITICAL PLANNING ACTIONS

Command:

Base, State, Country if Overseas:

Project Title

Project (Programming, Design, and Construction computer system) Number:

I. INSTRUCTIONS:

Place one X in the most appropriate response for each topic area to show current status of compliance. When responding to a statement requiring additional data, fill in the blank with appropriate information. If none of the printed statements are appropriate, add or attach an appropriate comment. For MILCON projects, the Civil Engineering Squadron Commander and installation commander must sign the certificate and submit it to the MAJCOM staff where it will be updated, retained and be readily available if required by HQ USAF.

II. PLANNING:

1. Environmental Impact Analysis (AFR 32-7061)

___ Categorical exclusion number _____ applies.
___ Environmental Assessment under preparation. Expected completion date is _____ (date).
___ Finding of No Significant Environmental Impact signed on: _____(date).
___ Draft Environmental Impact Statement (EIS) under preparation. Expected completion
___ date is: _____.
___ Draft EIS filed on _____ (date).
___ Final EIS filed on _____ (date).
___ Record of Decision signed on _____ (date).
___ Foreign nation or protected global resource exemption number_____ applies.
___ Environmental study (or review underway) under preparation. Expected completion date is _____.
___ Environmental study (or review) completed on _____(date).

2. Wetlands (AFI 132-7064)

___ Project is not sited in a wetland.
___ Requirements of EO 11990 in progress. Estimated completion date is _____.
___ Requirements of EO 11990 completed _____ (date). Findings of "No Practicable Alternative" signed _____ (date).

3. Flood Plains (AFI 32-7064)

___ Project is not sited in a 100-year flood plain.
___ Requirements of EO 11988 in progress. Estimated completed date is _____.
___ Project is sited in a 100-year flood plain. Requirements of EO 11988 completed on _____(date). Finding of "No Practicable Alternative" signed _____ (date).

DD Form 1391c, DEC 76 (Computer Generated) **Previous Editions May Be Used Internally Until Exhausted** **Page No.**

Figure 4.19. Continued.

4. Coastal Zone Management (AFI 32-7064)

___ Project does not directly affect a state coastal zone.
___ Consistency determination being developed. Estimated completion date is _____.
___ Consistency determination completed on _____ (date).

5. Coastal Barrier Resources (AFI 32-7064)

___ Project is not sited within the Coastal Barrier Resources System.
___ Project excepted from the Coastal Barrier Resources Act (CBRA).
___ Consultation with the Regional Director, United States Fish and Wildlife Service (USFWS), in progress. Estimated completion date is _____.
___ Consultation with the Regional Director, USFWS, concluded _____ (date).

6. Threatened and Endangered Species (AFI 32-7064)

___ Project has no potential for affecting threatened or endangered species or critical habitats.
___ Based upon advice from USFWS or host nation liaison on _____ (date), threatened or endangered species in the vicinity of the project will not be affected.
___ Consultation with USFWS underway in accordance with the Endangered Species Act.
___ Formal consultation with the Regional Director, USFWS completed on _____ (date).
___ Biological Assessment is required. Estimated completion date is _____.
___ Biological opinion issued by USFWS on _____ (date).

7. Cultural Resource Management (AFI 32-7065)

___ Properties affected by project are addressed in a Programmatic Agreement that was fully executed with the State Historic Preservation Officer and the ACHP on _____ (date).
___ Project area has not been surveyed for historic properties. Survey requirements are identified in the A-106 system and the estimated completion date is _____.
___ Project area has been surveyed and no historic properties were identified; the State Historic Preservation Officer (SHPO) was notified by letter dated _____.
___ Survey identified historic properties but the project will have no effect on them; written concurrence by the SHPO is dated _____.
___ After consultation, SHPO has concurred that the project will have no effect on historic properties. The Advisory Council on Historic Preservation has concurred in writing with this determination on _____ (date).
___ Project will have an adverse effect on eligible historic properties. A memorandum of agreement (MOA) mitigating the adverse effect was executed on _____(date).
___ Estimated date to execute the MOA is _____ or no MOA was developed and the formal comments of the Council are being sought.
___ Project will affect a site or property of interest to Native Americans.
___ Appropriate Native American Tribe or Group contacted on _____ (date).

8. Interagency and Intergovernmental Coordination for Environmental Planning (AFI 32-7060)

___ Coordination of proposed project with the state Single Point of Contact or other agencies is not required.
___ Coordination with the state Single Point of Contact is in progress. Expected date of completion is _____ (date).
___ Proposed project was coordinated with state Single Point of Contact or other agencies on _____ (date). (Specify any other agencies).

DD Form 1391c, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**

Figure 4.19. Continued.

9. Environmental Permits (AFIs 32-7040, 7042, 7044)

___ No permits are required.
___ No permits required, but regulatory agency notification required prior to construction (e.g., underground storage tank removals)
___ The following permits are required prior to construction: (List the construction and operating permits).
1.
2.
Etc.

10. Potentially Regulated Substances (AFIs 32-1052,7042)

a. Asbestos:
____not present; ____ survey underway;
____present (Describe mitigation, or state why mitigation is not necessary)

b. Lead-Based Paint:
____not present; ____ survey underway;
____present (Describe mitigation, or state why mitigation is not necessary)

c. Ozone depleting substance:
____not present; ____ survey underway;
____present (Describe mitigation, or state why mitigation is not necessary)

d. Polychlorinated biphenyls (PCBs):
____not present; ____ survey underway;
____present (Describe mitigation, or state why mitigation is not necessary)

e. Radon:
____not present; ____ survey underway;
____present (Describe mitigation, or state why mitigation is not necessary)

f. Other known hazardous or toxic substances and pollutants: (e.g., contaminated soils)
____not present; ____ survey underway;
____present (Describe mitigation, or state why mitigation is not necessary)

g. Other regulated substances (non-hazardous special or municipal wastes), such as POL (petroleum, oils, or lubricants), organics (tree, stumps, etc.), construction debris (plastic, etc.):
____not present; ____ survey underway;
____present (Describe mitigation, or state why mitigation is not necessary)

11. Radon at New Construction Sites

___ Not present
___ Present

DD Form 1391c, DEC 76 (Computer Generated) **Previous Editions May Be Used Internally Until Exhausted** **Page No.**

Figure 4.19. Continued.

12. Installation Restoration Program IRP

___ Facility being constructed does not impact restoration of any IRP site(s).
___ Facility being constructed does impact restoration of IRP site(s).
__ A Request for Waiver was submitted to MAJCOM on _____ (date).
__ The site is projected to be remediated and/or closed out on _____ (date), prior to commencement of construction activities.
__ The nature of the site contamination does not preclude the type of construction activity proposed.
__ There is a Compliance Agreement associated with this site.
__ A Remedial Investigation Feasibility Study was completed on _____(date), to accurately delineate the aerial extent of the contamination.

13. Air Pollutants (AFI 32-7040)

___ Will not be generated by the operation or construction of this facility
___ Will be generated by the operation or construction of this facility. Describe type and amount of substance expected to be generated, existing control systems, and the need for additional controls.
___ Conformity determination not required.
___ Conformity determination required.

14. Solid and Hazardous Wastes:

___ Facility will not be used for managing solid or hazardous wastes.
___ Facility will used be for managing solid or hazardous wastes.

15. Underground Storage Tanks (AFI 32-7044) (check all that apply)

___ No underground tanks are involved.
___ New underground storage tanks will be installed.
___ Existing tanks will be removed in accordance with governing regulations.
___ Contamination exists.
___ Contamination unknown.
___ Existing tanks will be retained in accordance with governing regulations (leak detection may be required).
___ Contamination exists.
___ Contamination does not exist.
___ Contamination unknown.
___ A site characterization was performed on _____ (date).
___ A site characterization is underway. ECD is _____ (date).

16. Air Installation Compatible Use Zone (AFI 32-7063

___ Facility is sited in compliance with Air Installation Compatible Use Zone Study. No noise level reduction is required.
___ Facility is sited in compliance with Air Installation Compatible Use Zone Study. Noise level reduction of _____ will be provided in design and construction.
___ Noise waiver request is being processed.
___ Noise waiver has been granted.

17. Base Comprehensive Plan (AFI 32-7062)

___ Facility is sited in a compatible land use category.
___ Facility is not sited in a compatible land use category for the following reason:
_____

DD Form 1391c, DEC 76 Previous Editions May Be Used Internally Until Exhausted Page No.
(Computer Generated)

Figure 4.19. Continued.

18. Airfield Clearance Criteria (AFR 32-1026)

___ Facility is in compliance with airfield/airspace clearance criteria, including clear zone, accident potential zones and airfield airspace (height obstruction) criteria.
___ A request for a waiver to airfield/airspace clearance criteria is being prepared. Expected completion date is _____.
___ A temporary waiver for construction activity in the airfield vicinity was approved on _____ (date).
___ A permanent waiver of airfield/airspace clearance criteria was obtained on _____ (date).

19. Air Space Use

___ Project does not affect air space use and does not require submittal to Regional Administrator, FAA.
___ Project sent to Regional FAA on _____ (date).

20. Explosives Quantity/Distance Siting and Safety Clearance Criteria

a. Projects involving munitions storage and explosives related facilities.

___ Project is not affected by Q/D criteria.
___ A request for waiver is under preparation. Expected completion date is _____.
___ Request to waiver safety criteria sent to MAJCOM on _____ (date).
___ Explosive siting and safety approval obtained on _____ (date).

b. Projects not involving explosives.

___ Project is not within the Q/D Clear Zone from any existing or proposed explosive-related facility.
___ Request to waiver safety criteria sent to MAJCOM on _____ (date).
___ A request for waiver is under preparation. Expected completion date is _____.
___ Exemption required and granted on _____ (date).

21. Air Base Survivability, Conventional Hardening, Chemical Protection Levels and Priorities, Camouflage, Concealment and Deception

___ Project does not affect airbase operability.
___ Facility is sited or constructed in compliance with criteria contained in WPM-1.
___ Waiver or exemption required; request submitted to MAJCOM Civil Engineering Readiness Office, in accordance with WMP-1.
___ Waiver or exemption granted on _____ (date).

22. Allowance for Physically Handicapped

___ Project provides all design features for handicapped.
___ Project provides access and limited features.
___ Project provides access but no other features.
___ Design features for handicapped are not required.
___ Design features will not be provided for following reason: _____

23. Real Estate Requirement (AFR 32-9001)

___ Project does not require acquisition of real estate interest.
___ Project requires the acquisition of a real estate interest over $200,000.
___ Land Interest is to be acquired through minor land authority.
___ Other (explain)_____.

DD Form 1391c, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**
(Computer Generated)

Figure 4.19. Continued.

24. Force Protection

___ Threat assessment performed.
___ Crime Prevention through Environmental Design methods to be incorporated into design if warranted (see local Security Police).

25. Excess Space

___ Excess space is not available to satisfy the requirement.

26. Temporary Facilities

___ Temporary facilities are required for this project and will be demolished upon completion.

27. Command, Control, Communications, and Computer (C4) Systems Support.

___ The communication requirements have been reviewed and the base C4 systems blueprint has been appropriately updated.

28. Energy Conservation

___ Project complies with the minimum energy conservation performance standards.

29. Seismic Considerations

___ Seismic evaluations performed.
___ Seismic deficiencies, identified by the seismic evaluation mitigated.

I concur with the above statements.

_____ _____

Base Civil Engineer (date) Installation Commander (date)

DD Form 1391c, DEC 76 Previous Editions May Be Used Internally Until Exhausted Page No.
(Computer Generated)

Figure 4.20. Economic Analysis Certification.

1. COMPONENT AIR FORCE	FY 1996 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
3. INSTALLATION AND LOCATION		
4. PROJECT TITLE		7. PROJECT NUMBER

CERTIFICATE OF SATISFACTORY ECONOMIC ANALYSIS

INSTALLATION/MAJCOM: Anywhere Air Force Base, Any State / MAJCOM

PROJECT TITLE: Provide Unaccompanied Personnel

PROJECT NUMBER: EFGH 123456

OBJECTIVE: Provide suitable cost-effective housing 320 unaccompanied enlisted personnel at Anywhere Air Force Base.

PROJECT COST: $8,500,000

ALTERNATIVES CONSIDERED:

Status Quo (Direct Compensation
New Construction
Improvement (Addition)

SUMMARY OF ANALYSIS RESULTS:

The New Construction alternative has the lowest NPV and is therefore the most cost-effective alternative. The Improvement alternative is the second most cost effective.

The New Construction alternative has the lowest cost/benefit ratio, indicating that this alternative is the most desirable means of achieving the project objective.

Cost sensitivity analysis indicates that the New Construction alternative would remain the most cost-effective alternative across a reasonable range of changes in the expense items.

The New Construction alternative is recommended for implementation.

DD Form 1391c, DEC 76 (Computer Generated) **Previous Editions May Be Used Internally Until Exhausted** **Page No.**

Figure 4.20. Continued.

1. COMPONENT AIR FORCE	FY 1996 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
3. INSTALLATION AND LOCATION		
4. PROJECT TITLE		7. PROJECT NUMBER

CERTIFICATE OF SATISFACTORY ECONOMIC ANALYSIS (Continued)

INSTALLATION/MAJCOM: Anywhere Air Force Base, Any State / MAJCOM

PROJECT TITLE: Provide Unaccompanied Personnel

PROJECT NUMBER: EFGH 123456

OBJECTIVE: Provide suitable cost-effective housing for 320 unaccompanied enlisted personnel at Anywhere Air Force Base.

PROJECT COST: $8,500,000

CERTIFICATION:

This economic analysis follows the guidelines and procedures contained in AFI 65-501 and AFM 65-506. Costs are based on ILE Source Document dated 15 AUG 92.

Installation FM Analyst _____ _____ (Date)

Concurrence of Installation FM _____ _____ (Date)

Concurrence of Installation CE _____ _____ (Date)

MAJCOM/FMA Evaluator _____ _____ (Date)

Concurrence by MAJCOM FMA _____ _____ (Date)

Concurrence of MAJCOM ILEH or ILEP _____ _____ (Date)

DD Form 1391c, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**
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Figure 4.21. List of Equipment.

1. COMPONENT AIR FORCE	FY 1996 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
3. INSTALLATION AND LOCATION		
4. PROJECT TITLE		7. PROJECT NUMBER

PROCUREMENT OF EQUIPMENT	DATE
FY in which equipment is programmed	
Equipment contract award date	
Date design criteria available	
Date design to start	
Date design complete	
Construction contract award date	
Construction time	
Construction completion date	
Required construction beneficial occupancy date (BOD)	
Equipment delivery date	
Operational date	

DD Form 1391c, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**
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Figure 4.22. NATO Eligibility and Data Sheet.

1. COMPONENT AIR FORCE	FY 1996 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
3. INSTALLATION AND LOCATION		
4. PROJECT TITLE		7. PROJECT NUMBER

NATO ELIGIBILITY AND DATA SHEET

1. Prefinancing is not planned for this project as:

____a. It is not required for use by, or in support of, a US unit committed to NATO.

____b. It is not within an established NATO infrastructure category for common funding, nor is it expected to become eligible for reasons stated. Current NATO policy indicates that this item will continue to be a user responsibility.

____c. It exceeds in its entirety the scope as described in the approved NATO criteria and standards for the applicable facility and seeking an upward deviation from NATO criteria is not justified for reasons stated.

2. Prefinancing is planned for this project, thus initially requiring US unilateral authorization and funding:

____a. Although not eligible for infrastructure common funding, a precautionary prefinance statement will be filed for this project to allow possible future recoupment if eligibility is established.

____b. Although not eligible for infrastructure common funding under present NATO rules and ultimate financing of the project by NATO through the infrastructure program is uncertain, eligibility for common funding is being sought in a NATO forum. If the project is determined to be eligible for NATO common funding, recoupment of funds will be sought from NATO.

____c. The project is partially eligible for NATO infrastructure common funding and to that extent has been or will be proposed for inclusion in infrastructure slice no. ____. NATO criteria precludes inclusion of complete project in Infrastructure. Prefinancing is for the NATO-eligible portion of the project, and recoupment of funds will be sought from NATO.

____d. The project is fully eligible for NATO infrastructure common funding. The scope does not exceed NATO criteria allowances, and the project has been or will be proposed for infrastructure slice no. _____. However, the acceptable beneficial occupancy date cannot be met within the timeframe required for NATO programming and funding and/or host country design and construction. Prefinancing is for the entire project and recoupment of funds will be sought from NATO.

DD Form 1391c, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**
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Figure 4.22. Continued.

1. COMPONENT AIR FORCE	FY 1996 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
3. INSTALLATION AND LOCATION		
4. PROJECT TITLE		7. PROJECT NUMBER

NATO ELIGIBILITY AND DATA SHEET

3. If categories 1c, 2b, 2c, or 2d apply, the following additional information will be provided on a separate DD Form 1391c:

____a. Title of NATO criteria document on which the determination is based.

____b. Criteria item number and title.

____c. Slice, serial number, and scope if the project has been approved either partially or entirely by the Defense Planning Committee.

____d. Joint Formal Acceptance Inspection (JFAI) references for the installation as may be related to the project.

____e. Computations and rationale if the project is determined to be only partially eligible (2c above).

____f. For installations in Germany, the scope of related Deutsch-Mark financed facilities that is considered available to NATO.

DD Form 1391c, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**
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Table 4.5. How to Prepare DD Form 1391 for Various Military Construction Projects.

	MILCON	**MINOR CONSTRUCTION(P-341)**	**OUT-OF-CYCLE MILCON**
WHEN REQUIRED	Required for all MILCON projects on receipt of annual MILCON Call Letter	Required for all minor construction projects	When disaster occurs. Needs authority of 10 U.S.C. 2854 or 2803 approved by the Secretary of the Air Force
WHO PREPARES 1391S	Base CE prepares for submission to the appropriate MAJCOM (host, tenant, Guard, Reserve)	Base CE prepares for submission to the appropriate MAJCOM (host, tenant, Guard, Reserve)	Base CE prepares for submission to the appropriate MAJCOM (host, tenant, Guard, Reserve)
Block 1, COMPONENTS (IN CAPS)	AIR FORCE	AIR FORCE	AIR FORCE
Block 2, DATE	(Always leave this block blank)	(Always leave this block blank)	(Always leave this block blank)
Block 3, INSTALLATION AND LOCATION (IN CAPS)	Installation/State/ Country	Installation/State/Country	Installation/State/Country
Block 4, PROJECT TITLE (IN CAPS)	See paragraph 4.2.5 for convention on Project Title	See paragraph 4.2.5 for convention on Project Title	See paragraph 4.2.5
Block 5, PROGRAM ELEMENT	See paragraph 4.2.6	See paragraph 4.2.6	See paragraph 4.2.6
Block 6, CATEGORY CODE	See paragraph 4.2.7	See paragraph 4.2.7	See paragraph 4.2.7
Block 7, PROJECT NUMBER	See paragraph 4.2.8	See paragraph 4.2.8	See paragraph 4.2.8

	MILCON	MINOR CONSTRUC-TION(P-341)	OUT-OF-CYCLE MILCON
Block 8, PROJECT COST	See paragraph 4.2.9	Will show total funded cost. If contract design services are required, show two separate entries. First entry will be the funded cost for construction. The second will be the P-313 funded A-E design funds required, followed by (P-313). For example 65.0 (P-313) 946.9	Will show total funded cost taken from Block 9
Block 9, COST ESTIMATES Primary Facility	See paragraph 4.2.10.1	See paragraph 4.2.10.1	See paragraph 4.2.10.1
Supporting Facilities	See paragraph 4.2.10.2	See paragraph 4.2.10.2	See paragraph 4.2.10.2
Subtotal	See paragraph 4.2.10.3	See paragraph 4.2.10.3	See paragraph 4.2.10.3
Contingencies	See paragraph 4.2.10.4	2% of subtotal may be allowed	See paragraph 4.2.10.4
Total Contract Cost	See paragraph 4.2.10.5	See paragraph 4.2.10.5	See paragraph 4.2.10.5
SIOH	See paragraph 4.2.10.6	See paragraph 4.2.10.6	See paragraph 4.2.10.6
Total Request	Add SIOH to total contract cost	Add SIOH to total contract cost	Add SIOH to total contract cost
Total Request (Rounded)	See paragraph 4.2.10.8 for rounding rules	Not Used	See paragraph 4.2.10.8 for rounding rules
Unfunded Costs	N/A	List below total cost, obtained from the detailed cost estimate. Must contain design cost as a minimum	N/A
Total Cost	N/A	Total Cost - Total Funded Cost and Unfunded Costs	

	MILCON	**MINOR CONSTRUCTION(P-341)**	**OUT-OF-CYCLE MILCON**
Equipment Provided from other Appropriations	Items bought and installed with non-MCP funds. This is a non-add entry below Total Request (Rounded). Include any prior-year equipment that will be relocated to the new facility, if applicable	Items bought and installed with non-MCP funds. This is a non-add entry below Total Request (Rounded). Include any prior-year equipment that will be relocated to the new facility, if applicable	Items bought and installed with non-MCP funds. This is a non-add entry below Total Request (Rounded). Include any prior year equipment that will be relocated to the new facility, if applicable
Block 10, DESCRIPTION OF PROPOSED CONSTRUCTION	See paragraph 4.2.11	See paragraph 4.2.11	See paragraph 4.2.11

	MILCON	**MINOR CONSTRUCTION(P-341)**	**OUT-OF-CYCLE MILCON**
Block 11, REQUIREMENT	See paragraph 4.2.12	Same as paragraph 4.2.12 except for requirement and current situation categorizing requirement.<u>REQUIREMENT:</u>Explain as a minimum: • The problems requiring correction. • When the need was first known. • Why it was not included in a prior or current MILCON. <u>CURRENT SITUATION</u>: Include as a minimum: • A statement that no other space or facility (either government-owned or economically feasible lease) is available for this project. • The required completion date and circumstances that so dictate this date. • A statement that the requested facility has not been denied by Congress in any MILCON request. If it has, full disclosure of all pertinent facts will be made.	In addition to the information in paragraph 4.2.12, the programmer must include the following: <u>REQUIREMENT</u>: a. For emergency construction projects: • Why project is urgent. • Why it cannot be deferred until the next MILCON b. For damaged and destroyed facilities: • Cause of Damage. • Date of Occurrence. <u>CURRENT SITUATION</u>: For damaged and destroyed facilities: • Numbers, names and current value of destroyed buildings. • Size and type of construction of destroyed buildings. • Statement of restoration not a facility deficiency

	MILCON	MINOR CONSTRUC-TION(P-341)	OUT-OF-CYCLE MILCON
Block 11, REQUIREMENT (Continued)		• A statement that the same requirement is not in any current MILCON or emergency authorization request, or if so, that the request is not responsive to the pressing need, and a complete explanation of the entire requirement providing the cost and sequence of work for accomplishing the total work involved shall be included	
CERTIFICATION REQUIRED TO ACCOMPANY DD FORM 1391	See paragraph 4.1	See paragraph 4.1 plus P-341, Certificate of Compliance for Critical Planning Actions in AFI 32-1021.	See paragraph 4.1
Note: For maintenance and repair projects, refer to AFI 32-1032, *Planning and Programming Real Property Maintenance Projects Using Appropriated Funds (APF).*			

Chapter 5

ECONOMIC ANALYSIS

5.1. Introduction. This chapter provides a brief overview of the Economic Analysis (EA) process. Refer to AFMAN 32-1089, *Air Force Economic Analysis Guidance Manual*, for step-by-step guidance on the preparation of EA documents. EAs are required as part of the project justification process for MILCON improvement, replacement, and new construction projects. A thorough and well-documented EA is a critical factor in project approval and subsequent Congressional appropriation. An EA is initiated as early as practical during the project planning process. An early start allows sufficient time to collect all the necessary data to conduct a superior life-cycle cost analysis, provides better information for early program decision making, and lays the foundation for superior program support documentation.

5.2. Requirement. An EA is required for all construction and major repair or renovation projects when:

- The project equals or exceeds $2 million.
- Project costs are less than $2 million but the principal justification for the MILCON project is economic.
- The facility would improve organizational or operational efficiency, including the consolidation of like organizations into one facility.
- The project consists of the disposal or major revitalization of many facilities that are energy inefficient or require excessive maintenance and repair (M&R).
- The project is a candidate for private sector development (PSD).
- The project involves non-permanent buildings supporting short-term facility requirements and the investment costs exceed $1 million, or if annual recurring costs exceed $200,000.

5.2.1. Exceptions. Occasionally, after a complete review of the facts and circumstances pertaining to the proposed project, the analyst may conclude that there is only one feasible alternative. In this case, a waiver or exemption from performing an EA is required. The exemption or waiver documentation includes a Certificate of Satisfactory Economic Analysis (as discussed in Chapter 4, paragraph 4.9) and an Executive Summary that includes a discussion addressing why only one alternative is feasible. This certificate must include all of the signatures required for a complete EA.

5.2.2. Project Coordination. The primary responsibility for performing the EA lies with the Financial Management (FM) staff at the affected organizational level. Collateral responsibility lies with the Civil Engineering (ILE) staff and the project user. Therefore, completing the EA requires close coordination between ILE, FM, and the end user of the facility. The initiating ILE office shall contact the local FM office early in the process for guidance in preparing the EA.

5.3. Types of EA. There are two types of EAs: preliminary EAs and full EAs. The following sections present a brief description of each type.

5.3.1. Preliminary EA. A preliminary EA is the first effort in the EA preparation process. It includes a statement of the problem or objective, assumptions, alternatives, a determination of feasible or infeasible alternatives, an estimation of the benefits and costs of each feasible alternative, and consideration of the riskiness of the recommendation relative to the key variables. The Air Force does preliminary EAs because it is not practical to do a complete EA for projects that are only being con-

sidered. A preliminary EA is conducted after an installation Facilities Board (FB) has established a requirement for a project, but before the installation FB has chosen an alternative. Professional judgment is used when deciding the extent of a preliminary EA. The goal is to facilitate a good management decision between possible alternatives within a project, as well as between competing projects. Only use techniques that are appropriate to the particular project. For example, use a present values analysis if the timing of cash flow differs greatly between the alternatives. AFM 65-506, *Economic Analysis*, contains a suggested format for a preliminary EA.

5.3.2. Full EA. A full EA is initiated if the MAJCOM FB supports a project. A full EA accompanies the finalized proposal. Fully developed EAs must meet the requirements of AFI 65-501, *Economic Analysis and Program Evaluation*, and AFMAN 32-1089, *Air Force Economic Analysis Guidance Manual*. Since a full EA is started during the initial stages of project development, it must be updated when significant developments occur that would invalidate or significantly alter the conclusions. For the summer review of the budget, the EA has to be only approximately correct and developed within the last two years. However, for the BES, the EA must exactly match the programmed amount and scope. Specifically, EAs should be updated:

- When there is a change in the project scope.
- If there are major changes in the initial study assumptions.
- When new alternatives are identified that appear to satisfy the stated requirement.
- When changes in the unit cost for construction, renovation, or any other significant cost element exceeds the expected inflation rate.

Chapter 6

SPECIAL CONSIDERATIONS

6.1. Introduction. This chapter provides information on special programs and topics associated with the MILCON programming process.

6.2. Funded, Unfunded, and Excluded Costs.

6.2.1. Funded Costs. Funded costs are incurred during the construction phases. They are funded from MILCON funds or O&M funds. Funded costs include, but are not necessarily limited to, the following:

- **Materials** - All materials, supplies, and services applicable to the project.
- Equipment - All items of installed capital equipment.
- **Transportation** - Transportation costs applicable to materials, supplies, installed capital-type equipment, and government-owned equipment.
- **Labor** - All civilian labor costs, including labor costs of construction units composed of foreign nationals. These funded civilian labor costs for a project are determined by the accounting system in the Work Information Management System (WIMS), which uses the shop rate in its calculation. Installation staffs must not use any method other than this WIMS accounting procedure to compute civilian labor funded costs, since to do so might result in incomplete project costs and subsequent noncompliance with minor construction funding limits.
- **Overhead** - That portion of installation overhead or support costs that can be identified as representing additional costs incurred as a result of the project.
- **Supervision, Inspection, and Overhead** - The costs charged by the Corps of Engineers, the Naval Facilities Engineering Command, and the Air Force when serving as the design and/or construction agent.
- **Travel** - All travel and per diem costs.
- **Equipment Operation** - That portion of costs applicable to the operation and maintenance of government-owned equipment. Such costs shall be computed on an hourly rate (shown in AFI 65-601, Volume I, US Air Force Budget Policies and Procedures).

6.2.2. Unfunded Costs.

- Some efforts in support of military construction are identified as unfunded costs. Although unfunded costs are part of the construction effort associated with a MILCON project or Minor Construction project, these are not financed from appropriations available for military construction. Unfunded costs are capitalized as part of the real property investment and include the following:
- **Military Labor** - Military labor costs used for a project are unfunded. These unfunded military labor costs are determined by the accounting system in WIMS, which uses the shop rate in its calculation. Installation staffs must not use any method other than the WIMS accounting procedure to compute these unfunded military labor costs, since to do so might result in incomplete project costs and subsequent noncompliance with minor construction funding limits.

- **RED HORSE and Prime BEEF Units** - The labor costs of RED HORSE and Prime BEEF units are unfunded. These are costs for all of the labor performed by these units on a project. These costs are computed directly from the labor performed, and the use of the shop rate is not applicable.
- **Depreciation** - These are the costs applicable to the depreciation of government-owned equipment in accordance with hourly rates determined in accordance with Chapter 26 of AFI 65-601, Volume I, Subsection F.7, "*Asset Use Charge*."
- **Materials** - Materials, supplies, and items of installed capital equipment that have been obtained specifically for a project on a non-reimbursable basis, either as excess distributions from another military DoD agency or as excess distributions from other government agencies. A military DoD agency is precluded from using materials, supplies, or items of installed capital-type equipment on its own minor construction projects on a non-reimbursable basis.
- **Fringe Benefits** - Unfunded civilian fringe benefit rates as prescribed in Chapter 26 of AFI 65-601, Volume I, for DoD civilian personnel.
- **Gifts** - Gifts from private parties.

6.2.3. Excluded Costs. DD Forms 1391c will describe the excluded cost items and indicate their value. In general, the excluded costs include:

- Equipment for which the title is retained as unit personal property and is not picked up on real property records. For example, the Army and Air Force Exchange Service (AAFES) retains the title of all equipment purchased by them that can be removed from the facility without causing substantial damage to the facility.
- Items of RPIE, when the sole purpose of the project is to relocate the equipment from one location to another on the same installation.
- Command surveillance or other agency cost related to site visits and functional design review by the MAJCOM, or those actions performed by other agencies that replace the normal Base Civil Engineering function, are funded with operational (industrial) funds.

6.3. Prewired Workstations (PW). PW provides office workstations that use 20 percent less space than conventional offices with floor-to-ceiling solid walls. It is OSD and Air Force policy that PW be funded with O&M appropriated funds. PW is tailored to the office functions. Refer to AFI 32-1024, Standard Facility Requirements, for information on space authorized per person for PW.

6.4. Relocatable Facilities. Relocatable facilities are short-term facilities that are designed to be readily moved, assembled, disassembled, stored, and reused. These facilities satisfy short-term facility requirements. The connection designs in these facilities must allow for easy disassembly with minimum damage to the components. In classifying buildings as relocatable, the ratio of nonrecoverable facility components to facility acquisition cost may not exceed 20 percent. Nonrecoverable facility components typically include foundation preparation, site preparation, facility disassembly, repackaging, normal repair and refurbishment of components, etc. Facility acquisition costs include facility components, delivery to base/site, erection, and assembly. The following short-term facilities are not classified as relocatable facilities:

- Relocatable facilities required solely for training military personnel on the facility's use and assembly.

- Building types that are part of the organizational allowance, troop unit, or mobility equipment.
- Building types that are provided as an integral part of a mobile equipment item and that are incidental portions of such equipment, such as shop, communications and instrument vans, or trailers.
- Family housing units.
- War Reserve Material (WRM) Facilities.
- Portable facilities designed to be moved intact, usually for a short time in one location, such as shelters for workmen, skid-mounted bus shelters, construction offices, unconnected sanitary facilities, sentry boxes, and other similar facilities.
- Stress tension shelters. The shelter, foundations, utilities, and site preparation must be funded by MILCON, P-341, or O&M-funded Minor Construction.

6.4.1. Restrictions Applying to Relocatable Facilities. MAJCOMs must adhere to the following restrictions:

- Keep temporary and relocatable facilities at an absolute minimum.
- Keep them functional yet austere.
- Ensure they are neat in appearance but do not have permanent-type features, such as brick exteriors, brick building signs, automatic sprinkler systems, or extensive landscaping.
- Painting is allowed to make the facility blend in with the surrounding environment.
- Relocatables should meet the safety requirements and normal construction standards established by the Air Force and DoD.

6.4.2. Categories of Relocatable Facilities. Relocatable facilities are categorized into three groups:

- Facilities interim to a MILCON project.
- Facilities for peak or transitory situations.
- Facilities incident to a MILCON project.

6.4.2.1. Facilities Interim to MILCON and Peak or Transitory Situations. These are short-term (normally 3 years or less) facility requirements needed to accommodate urgently needed functions, such as deployments, military contingency operations, or disaster relief requirements, until a permanent facility is provided through MILCON or Nonappropriated Funds (NAFs). DoD Instruction 4165.56, *Relocatable Buildings*, authorizes these facilities. Approval of these facilities is based on funded costs, which include site preparation, foundations, exterior utilities, and other supporting construction costs. Unfunded costs include facility acquisition, leasing, assembly, disassembly, packaging, transporting, maintenance, operation, and refurbishment. MAJCOMs have approval authority for these facilities, provided the funded cost does not exceed $500,000. As a condition of approval, MAJCOMs are obligated to include the permanent MILCON project in their Total Obligation Amount (TOA) in the next MILCON budget submittal that goes to OSD. The MILCON project cannot be deferred beyond that fiscal year by MAJCOMs without the written approval of HQ USAF/ILEC. MAJCOMs must also maintain an inventory of their temporary facilities. HQ USAF/ILE can approve the use of these facilities for up to 5 years, but SAF/MII approval is required if these facilities are to be used for longer than 5 years. MAJCOMs must request this approval from HQ USAF/ILE at least 6 months prior to the end of the third year.

6.4.3. Facilities Incident to MILCON. These are short-term facilities required to accommodate activities displaced by an approved and funded MILCON project. The supporting facilities costs shall include the construction or lease cost of all short-term facilities needed to house the functions that would have to be displaced during the project. All costs associated with the facility (building, foundation, site preparation, and utilities) are funded costs. For incident facilities, consider temporary facilities costs in the MILCON project life-cycle cost analysis. Incident facilities must be removed upon completion of the permanent project.

6.4.4. Documentation Required to Acquire Relocatable Facilities.

- DD Form 1391: The installation must submit to the MAJCOM a DD Form 1391 showing all facility acquisition-related costs.
- An Economic Analysis is required for interim facilities.
- An Engineering Evaluation is required to ensure that the relocatable facility meets DoD safety standards.

6.5. Nonappropriated Fund (NAF) Projects. NAF projects include maintenance, repair, and construction work on the community facilities projects, such as arts and crafts centers, bowling centers, playing courts and fields, swimming pools, youth centers, golf courses, clubs, etc. NAF projects provide both economic and MWR returns to Air Force personnel. NAFs are cash and other assets received from sources other than funds appropriated by Congress, such as funds generated by Air Force personnel from AAFES, MWR activities, the commissary, etc. NAF funds are government funds; they are used for the collective benefit of military personnel, their dependents, and authorized civilians who generate them. These funds are separate and apart from funds that are recorded in the books of the Treasurer of the United States.

6.5.1. NAF Facility/Function Categories. NAF facilities are divided into five different categories based on their function, as described below. See AFI 32-1022, *Planning and Programming Nonappropriated Fund Facility Construction Projects*, for details.

- Category A--Mission Sustaining Programs. These programs promote the physical and mental well-being of military personnel, such as gymnasiums, libraries, parks, and picnic areas. Programs in this category generally do not generate revenues. Construction, maintenance, and repair work in Category A facilities are funded with appropriated funds (APFs).
- Category B--Basic Community Support Programs. These programs satisfy the basic physiological and psychological needs of military members and their families. These programs include arts and crafts centers, child development centers, recreational swimming pools, and playing fields. These programs have a limited ability to generate NAF revenues. Construction work in Category B facilities, with the exception of child development centers and youth centers overseas, are funded with NAFs. However, maintenance and repair work in these facilities is funded with APFs.
- Category C--Revenue-Generating Programs. These programs provide recreational activities that benefit military morale, such as golf courses, clubs, bowling centers (more than 12 lanes), and car washes. These programs have the greatest capability of generating NAF revenues, and they fund most of their own expenses. Construction and repair work unique to the activity operation are funded with NAFs. Facility maintenance and repair work is funded with APFs.

At designated remote and isolated locations, Category C projects are treated as Category B projects for funding purposes.

- Lodging Fund Programming. Lodging facilities include Visiting Officer/Airmen Quarters, Bachelor Officer Quarters, Temporary Lodging Facilities, etc. These facilities use the same fund source as Category A activities (APFs), with the exception of the temporary lodging facilities.
- Other Activities. This group includes activities that are not in one of the other categories, such as banks, credit unions, thrift shops, etc. These facilities are privately funded and are not authorized APF support in any amount.

6.5.2. NAF Projects Approval Authority.

- The approval authority for NAF projects costing more than $500,000 lies with Congress. OSD submits an annual report of the four military services' NAF projects costing $500,000 and more to the HNSC and the SASC for review and release prior to construction contract award.
- Projects costing $200,000 to $500,000 are approved by OSD and are reported after-the-fact in the next annual submission.
- OSD advises the HNSC and SASC of individual cost increases or scope increases on approved projects that exceed 25 percent and 10 percent, respectively.
- Funds for NAF projects are approved by respective funds boards, such as the Air Force Morale, Welfare, and Recreation Advisory Board, for Services projects; the Army and Air Force Exchange Service Board of Directors, for exchange projects; and the custodians of private funds, for banks, credit unions, etc.
- For additional information on the NAF facilities program, refer to AFI 32-1022, *Planning and Programming Nonappropriated Fund Facility Construction Projects*.

6.6. RDT&E Facilities. These facilities are directly related to Air Force Research, Development, Test and Evaluation (RDT&E) efforts, including temporary and relocatable facilities, and the acquisition, modification and installation of equipment. Facilities and equipment acquired under this authority have no general utility, and are generally for use by contractors performing R&D work for the military. The construction program using RDT&E funds is managed by the Office of the Under Secretary of Defense for Acquisition and Technology, in particular, the Directorate of Test and Evaluation and the Directorate of Research and Engineering. The construction of RDT&E facilities is budgeted and justified to Congress in the same manner as MILCON projects. RDT&E funds are requested by line item in the RDT&E portion of the PB. Projects not submitted as part of the budget submission will not be initiated until Congress has been notified of the emergent requirement. The authority for the use of RDT&E funds for construction is contained in 10 U.S.C. 2353. The law states that:

6.6.1. RDT&E funds can only be utilized for providing facilities and equipment required to perform an RDT&E contract. Such facilities may be leased or lent to the contractor performing the RDT&E contract with or without reimbursement from the contractor. The facility may also be sold to the contractor at fair market value.

6.6.2. RDT&E facilities that are constructed on land not owned by the United States may not be constructed with the RDT&E funds unless:

- There is an option that the US Government could acquire the underlying land.
- There is a provision for reimbursing the US Government for the fair market value of the facilities at the completion of the contract.

6.6.3. Construction of facilities for RDT&E costing $500,000 or less may be also be funded with RDT&E funds. Such expenditures are authorized under 10 U.S.C. 2805, "Unspecified Minor Construction." All minor construction must result in a complete and usable facility and under no circumstances may a construction project be broken into increments so that each incumbent falls within the applicable threshold.

6.6.4. Proceeds of sales or reimbursements under the law shall be paid into the Treasury as miscellaneous receipts.

6.7. Non Real Property Installed Equipment (Non-RPIE). The following sections provide guidance pertaining to the installation of non-RPIE in real property facilities. **Table 6.1.** provides a quick reference for the funding types for different categories of site preparation work associated with the installation of non-RPIE.

6.7.1. Cost of Site Preparation for Installing Non-RPIE in New Construction. The cost of all site preparation work, except for uninterruptible power supply (UPS) systems associated with installing non-RPIE in a facility, is always a construction cost when the equipment is being installed in a new facility (including an addition) (see table 6.1). If the UPS is purchased on an installed basis, investment equipment funds are used. If the UPS system costs $25,000 or more, it is an investment cost. If it costs less than $25,000, it is an expense. Items such as input, output, and bypass switch gear must be included in the programming, funding, design, and construction of the MILCON project.

6.7.2. Cost of Site Preparation for Installing Non-RPIE in an Existing Building. If the non-RPIE (including but not limited to communications equipment, computers, simulators, radar, industrial or maintenance equipment, RDT&E equipment) is being installed in an existing facility, the site preparation items required for the equipment installation outlined in paragraph 6.7.3 are not construction costs (see **Table 6.1.**).

6.7.2.1. Site Preparation Funding When Equipment Procurement Cost is More than $25,000. If the non-RPIE being installed costs more than $25,000, the site preparation items (in paragraph 6.7.3) are funded from the same appropriation that is funding the equipment procurement (not from EEIC 529). In this case, the funding of the site preparation is considered an investment. The Office of Primary Responsibility (OPR) for the non-RPIE equipment is responsible for obtaining funding for the site preparation items.

6.7.2.2. Site Preparation Funding when Equipment Procurement Cost is Less Than $25,000. The site preparation items in paragraph 6.7.3 are expenses if the equipment being installed costs less than $25,000. In this case, the site preparation is funded as an expense from either the appropriation funding the equipment or from O&M funds (not EEIC 529). OPRs for the non-RPIE equipment are responsible for obtaining the site preparation items.

6.7.3. Site Preparation Categories Costs that are not Construction. The following categories of site preparation, in support of non-RPIE installation in an existing facility, are not construction costs (see table 6.1):

- **Heating, Ventilation, and Air Conditioning (HVAC) for Equipment in Environmentally Controlled Space:** Types of equipment where the manufacturer of the equipment specially states it must be operated in an environmentally controlled space.
- Prefabricated Clean Rooms: Prefabricated clean rooms installed in non-controlled spaces or when the building central system cannot meet the temperature and humidity requirements of the clean room operation.
- Operator Comfort: When the equipment to be installed will vary the temperature or humidity beyond reasonable comfort levels in the immediate area of such equipment. HVAC may be provided only in bona fide equipment spaces directly related to the equipment and not in associated administrative or other work areas. Note: projects that combine environmentally controlled administrative or other work space or personnel living spaces with controlled equipment spaces must be programmed, budgeted, and funded as construction. This policy will not be used to justify piecemeal installation of HVAC. When possible, HVAC provided under these circumstances will be an extension or expansion of a central plant system. This may include the extension of duct work, total HVAC systems, or chilled/hot water or steam systems through the installation of new supply/return lines and new air handling units.
- Secondary Utility Work: Secondary utility work necessary to connect the equipment to existing utilities within the facility. This work lies between the point where the primary service enters (usually located within the structure but they may be outside), and the equipment to be served, such as the existing main electrical service panel or equipment requiring primary voltage from the building's primary buss. Structural provisions (conduit or cavity runs) for known requirements will be included in the project design to avoid later structural damage. Primary and secondary utility work not described above will be categorized as construction.
- Structural Enclosures: Special features, such as structural enclosures, if these are justified as being specifically required for the operation of the equipment.
- Removal of Walls and Roofs: Temporary removal and reinstallation of portions of existing walls, roofs, utility systems, and appurtenances that may be required to permit the installation of equipment.
- Shielding: The costs of installing shielding for electromagnetic-radiating devices is equipment funded. Structural modification, including new, permanent partitions incident to the installation of shielding, are construction-funded costs.
- Special Foundations: The cost of special foundations or pads on slab-on-grade to support the load of equipment or to secure equipment in place is equipment cost. However, an increase in the existing load-bearing capacity of such floors by additional or larger structural components is construction cost.

6.7.4. Contracting and Accountability. The funding procedure for the site preparation items listed above in paragraph 6.7.3, which are not construction, does not prohibit such site preparation work from being included in a construction contract. However, installation staffs must separately identify these non-construction funds in the bidding documents for obligating and auditing purposes. All site preparation components (but not the non-RPIE equipment) accomplished under this authority become real property and will be maintained by installation staffs using funds available to support the real property account.

Table 6.1. Funding for Non-RPIE Site Preparation.

Category of Work	Funding Source (Note 3)	
	In Alteration of Existing Facility (Note 1)	In Addition or New Construction (Note 2)
Raised Flooring	EQP	CON
Air Conditioning for:	EQP	CON
Equipment space directly related to equipment operations and not in associated space.	CON	CON
Equipment space directly related to equipment operations and concurrently in associated space.		
Utility Work:	EQP	CON
Secondary utility work necessary to connect equipment to building services.	CON	CON
Primary utility work and other secondary utility work (not described above).		
Removal and Installation of Interior Partitions, etc.:	EQP	CON
To permit the installation of equipment.	CON	CON
For other than the installation of equipment.		
Uninterruptible Power Supply (UPS)	EQP	EQP
Real Property Installed Generator	CON	CON
Fire Protection System:	CON	CON
Built into the facility, such as a sprinkler system.	EQP	CON
Shielding for electromagnetic radiation devices (structural modifications incident to shielding is construction).		
Prefabricated Clean Rooms	EQP	CON
Special Foundations and Pads on slab-on-grade (increase in load-bearing capacity of floors through the use of larger structural components is construction).	EQP	CON

Category of Work	Funding Source (Note 3)	
	In Alteration of Existing Facility (Note 1)	**In Addition or New Construction (Note 2)**
NOTES: 1. Alteration of an existing facility to accommodate new equipment or to better accommodate equipment currently housed in the facility. 2. Addition to an existing facility or construction of a new facility to accommodate equipment. 3. Type of Funds: CON for construction. EQP for equipment. If the cost of the electronic equipment to be installed (which is being supported by this element of work) is more than $25,000, then the work is considered an investment and is funded from the same appropriation that is funding the electronic equipment. If the cost of the electronic equipment to be installed (which this element of work supports) is less than $25,000, then the work is an expense and is funded from operations and maintenance funds (not EEIC 529).		

6.8. Heating/Power Plants (Third-Party Financing and Fuel Conversions).

6.8.1. Third-Party Financing. Installation and MAJCOM staffs will explore the feasibility of third-party financing for all large-scale heating and power plant projects servicing the entire base. Consideration of the third-party option must, as a minimum, include a comprehensive analysis of the potential advantages and disadvantages of contracting to the third party. If the analysis results in a determination that a third-party contract is not advisable, installation staffs and MAJCOMs will include such analysis in the justification for programming the project as a MILCON project when it is submitted to HQ USAF/ILEC. If the analysis supports further consideration of a third-party contract, installation and MAJCOM staffs will solicit these proposals and program the project as a MILCON project only if third-party financing is not obtained.

6.8.2. Fuel Conversions. Actions to convert heating plants to use a different type of fuel than that which is currently in use will normally be included as a MILCON project. Prior to submitting such MILCON projects to HQ USAF/ILEC, MAJCOMs must evaluate and approve the conversion, in accordance with the guidance in AFI 32-1068, *Heating Systems and Unfired Pressure Vessels.*

6.9. Improvement (Alteration) of Newly Constructed Facilities. Improvements within 12 months of completion and initial use (referred to as beneficial occupancy date) of facilities constructed with MILCON funds can be accomplished only when such work is required because of new requirements relating to operations, health, safety, security, or environmental compliance that arose since completion of the project. MAJCOMs can approve such improvements costing less than $500,000 for accomplishment as O&M-funded Minor Construction.

6.10. Incrementing and Phasing.

6.10.1. Incrementing. When a contract is awarded for a large multi-million dollar construction project, although the entire cost of the project is obligated, the actual expenditure of funds will occur over a period of two or more years. Based on the projected expenditure for each year, the project is divided into increments, with the cost of each increment equal to the funds to be expended in that year. Each increment by itself does not provide a complete usable facility, but all of the increments together provide the complete facility. In incrementing, the entire cost of the project is authorized in the first

year, but only the first year's increment is appropriated. Appropriation is provided in succeeding years for the remaining increments. Authorization of the total cost in the first year permits award of a contract for the entire project subject to the availability of future appropriations. It is very difficult to obtain approval for incrementing a MILCON project, and therefore, incrementing is rarely used. OMB Circular A-11, *Preparation and Submission of Budget Estimates*, requires that every construction project be fully funded in one year. In order to increment a project, a waiver to OMB Circular A-11 must be requested by HQ USAF/ILEC from OMB through the Secretary of Defense. Incrementing can normally be considered only for projects costing at least $50 million. MAJCOMs like to increment larger projects because if incrementing is approved by OMB, the entire cost of the project need not be programmed in the first year, thereby freeing up MAJCOMs Total Obligation Authority (TOA) for other projects.

6.10.1.1. When to Submit a Request for Incrementing. MAJCOM staffs must submit requests for incrementing to HQ USAF/ILEC at least 8 months prior to the submittal of the BES, since a decision must be obtained from OMB before the budget is submitted to the Secretary of Defense in September/October of each year.

6.10.2. Phasing. In phasing, a project is divided into two or more segments, with each phase providing a complete, usable facility that will accomplish a specific mission objective without any further funding. Phasing is normally used for high-cost projects or programs where accomplishment of the entire project at one time might disrupt base activities. MAJCOM staffs must submit requests for phased MILCON projects and show in the DD Form 1391 the reasons for the phasing, a description of the impact if phasing is not permitted, and the complete scope and cost of the entire effort encompassing all the phases. Phasing does not require an exception to OMB Circular A-11.

6.10.2.1. How Phasing is Implemented. HQ USAF/ILEC requests authorization and appropriation each year only for the particular phase being programmed that year.

6.11. Land Needs. MAJCOM staffs will program all known needs for land, showing the acreage requirement and interests desired regardless of the estimated cost of acreage, in accordance with the guidance contained in the paragraphs that follow. Table 6.2 provides a quick reference for programming land.

6.11.1. Requirement Analysis and Justification. Installation staffs must prepare the initial estimate of land needs, including the type of interest, acreage, and cost, and include this on a DD Form 1391 submitted to the MAJCOM. MAJCOM staffs must include in the DD Form 1391 the proof that existing government-owned land is not available, or if land is available, they must show that it is not adequate for the requirements. MAJCOM staffs will also include in each DD Form 1391 for land acquisition a listing of government-owned properties that were reviewed, screened, and rejected as alternatives to the proposed acquisition.

6.11.2. Minor Land to be Funded with O&M Funds. Installation staffs and MAJCOMs will fund from O&M funds land projects that cost $200,000 or less (excluding administrative costs), and that are not associated with a specific MILCON project (reference: AFI 32-9001). Installation staffs and MAJCOMs using 3600 appropriation can use their RPMA program element for minor land acquisition. MAJCOMs must submit minor land projects to AFREA/MI for approval regardless of cost.

6.11.3. Programming of Land Associated with a MILCON Project. MAJCOMs must submit MILCON projects to HQ USAF/ILEC (with information copy to AFREA/MI) for all land acquisitions in excess of $200,000, and land projects under $200,000 that are associated with a MILCON project,

since such projects must be submitted to OSD and subsequently to Congress for authorization and appropriation. MAJCOMs must submit land projects for inclusion in MILCON projects in accordance with the following guidance:

- When land associated with a specific MILCON project costs less than 30 percent of the total project cost (construction cost plus land cost), then the land cost is included in the project, regardless of the cost of the land. The land cost will be shown as a support item on the DD Form 1391, and the project title will include the words "With Land Acquisition." This applies even if the land cost is under $200,000.
- If the land cost is greater than 30 percent of the total project cost, but is less than $200,000, it will also be included in the MILCON project.
- If the land cost is greater than 30 percent of the total project cost and is more than $200,000, it will be programmed as a separate land project.

6.11.4. Land Not Associated with a Specific MILCON Project. If the land is not associated with a specific MILCON project, such as land acquired for AICUZ or explosives safety, it will be programmed as a separate MILCON project if it is over $200,000. If it is under $200,000, it will be accomplished under minor land authority using O&M funds as described in paragraph 6.11.2.

Table 6.2. Land Programming Guidance.

A. If Land is Associated with a MILCON Project		
Land Cost Divided by Cost of Project + Land (%)	**Land Cost in $**	**How Programmed**
Under 30%	Any Amount	Include in project and add "Land Acquisition" to project title.
Over 30%	Under $200,000	Same as above.
Over 30%	Over $200,000	Separate MILCON project.
B. Land Not Associated with a MILCON Project (e.g., AICUZ or Explosive Safety)		
Over $200,000		Separate MILCON project.
Under $200,000		Minor Land - O&M funded.

6.11.5. Real Estate Planning Reports (REPR). MAJCOMs base the cost of their MILCON land projects on the REPR, which they must submit to AFREA/MI in accordance with procedures outlined in AFI 32-9001.

6.11.6. Relocation or Removal of Structures Acquired with Land. Installation staffs and MAJCOMs will not include in land item costs the cost for the relocation or removal of structures, or any site preparation work that will be associated with acquiring the land. The costs to exclude, for example, are the removal or relocation of existing roads, railroads, buildings, structures or systems, including irrigation systems or natural features that are hazards to operations. Such work and its estimated cost will be listed as a separate support item in MILCON construction projects that include the land, and as a separate support item in MILCON projects that are for land only. Installation staffs must make sure that the cost shown for acquiring interests in land show only the cost of acquiring the real estate, and that the cost of relocation, etc. is shown separately.

6.11.6.1. For Minor Land Projects. Relocation will not be included in minor land projects, but will be programmed as either separate MILCON projects if the project costs over $500,000 or as Minor Construction projects if the project costs less than $500,000. In these separate relocation projects, installation staffs and MAJCOMs must refer to the cost and method of acquiring the land interest.

6.11.7. Description of Project, Additional Information. If the information is available, installation staffs and MAJCOMs must include on the DD Forms 1391 for land projects the following data concerning land interests to be acquired, usually addressed in the REPR:

- Description of land needed (dimensions, area in acres) with map attached.
- Number of ownership.
- Present use.
- Highest and best use.
- If zoned, the zoning authority (county or city) and for what use the land is zoned (agricultural, residential, commercial, or industrial).
- Type and number of existing buildings or other improvements on the land, and their estimated fair market value.
- If easements are required, whether their acquisition will cause the present use of the land to be terminated.
- If the land is used for growing crops, the crops normally grown, and whether the land is irrigated.
- The nature of any mineral deposits, and the estimated amount by which they increase the value of the land.
- An estimate of severance or other damages, resettlement and relocation costs, and contingencies.

6.12. Leased Facilities. Installation staffs and MAJCOMs will consult AFI 32-9001 for limitations and approvals that may be applicable (depending on the costs of improvements and rental) prior to accomplishing improvements to leased facilities.

6.13. Mezzanines. A mezzanine of a movable nature, installed so that it is neither permanently affixed to nor an integral part of the building, will be categorized as "movable equipment." When it is installed as a storage aid to increase available storage space and thus improve supply and storage operations, it will be classified as a supply/expense item. All other installed mezzanines will be classified as construction/ investment.

6.14. Modular Offices. A modular office that was built as a separate, freestanding unit and that can easily be moved from place to place within or between buildings without any disconnections, except for quick utility disconnections, will be categorized as "movable equipment" and classified as a supply/ expense item when installed in a warehouse or other storage building and used exclusively for functions connected with supply/storage activities in that building. All other installed modular offices will be classified as construction/investment.

6.15. Productivity Investment Fund (PIF). Installation staffs and MAJCOMs can seek funding from the Air Force PIF program for investments in various appropriations, including MILCON, for efforts that result in hard savings or cost avoidance in O&M and manpower. Competition is keen, and normally only projects with a very quick amortization of the investment (less than 2 years) are funded.

6.15.1. Issuance of PIF Guidance. Special guidance on the submittal of PIF projects is issued by HQ USAF/PER. When MAJCOMs submit MILCON projects to HQ USAF/PER in response to their call for PIF candidates, an information copy must be sent simultaneously to HQ USAF/ILEC and clearly marked as PIF. HQ USAF/PER reviews PIF candidates and consults ILEC on MILCON items. ILEC and PER will determine whether PIF funding can be anticipated. If warranted, ILEC will authorize design. No design funds are provided in the PIF program; therefore, MAJCOMs must fund the design of PIF projects from funds made available to commands for MILCON design.

6.15.2. Transfer of PIF Funds to MILCON. If HQ USAF approves the MILCON project for funding with PIF, the actual funds for the project are transferred to MILCON prior to the BES submittal to OSD. The PIF MILCON project then becomes similar to all other MILCON projects with respect to review and approval by OSD and submittal to Congress.

6.15.3. Do Not Duplicate PIF in MILCON Submittals. Commands must not include PIF projects in command MILCON TOA submittals. Commands must select the programming route desired: MILCON or PIF. PIF candidates submitted to HQ USAF/PER must be shown in MILCON submittals for information only and not be part of MILCON TOA. If the project is ultimately approved as PIF, the funds will be transferred to MILCON and the project will become part of the MAJCOM MILCON program.

6.16. Space for Blind Vendors. When acquiring or substantially altering or renovating Air Force facilities, it may be necessary to provide adequate sites within these facilities for the operation of a blind vending function. Installation staffs and MAJCOMs must consult AFI 34-206, *Vending Facility Program for the Blind on Air Force Property*, for guidance on the minimum requirements for such space and to determine when space for blind vendors is to be included in planned construction projects.

6.17. Special Compartmented Information (SCI) Facilities. Installation staffs and MAJCOMs must make sure that all facilities to be designated as SCI facilities are to be constructed or modified according to DIAM 50-3, Physical Security Standards, unless waived by HQ AFISA/INS (see AFI 14-302).

6.18. Utility Connection Charges.

6.18.1. Utility Connections. The "connection charge" for utility lines from the utility supplier's existing distribution system to the base delivery point is funded with O&M funds. Any termination liability incurred as a means of financing such lines is also funded with O&M funds.

6.18.2. Suppliers "Backbone" System. Contributions to the cost of expanding the utility supplier's production facilities or its general "backbone" distribution system are funded with MILCON funds.

6.18.3. On-Base Systems. On-base utility distribution systems from the base delivery point to various facilities on base are government owned and are funded as construction. They are programmed either as a separate utility project if the lines serve existing facilities, by prorating the cost among several projects if they serve more than one facility or if they serve a new area on the base that involves the construction of several new facilities, or by including the cost in a project for a new facility if it is

being connected to the existing on-base distribution system. However, on ANG installations, on-base utility systems may be owned and maintained by the local utility companies.

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Attachment 1

GLOSSARY OF REFERENCES, ABBREVIATIONS, AND ACRONYMS

References

10 U.S.C. 2353, *Contracts Acquisition, Construction, or Furnishing of Test Facilities and Equipment*

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10 U.S.C. 2802, *Military Construction Projects*

10 U.S.C. 2803, *Emergency Construction*

10 U.S.C. 2804, *Contingency Construction*

10 U.S.C. 2805, *Unspecified Minor Construction*

10 U.S.C. 2806, *Contributions for NATO Infrastructure*

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10 U.S.C. 2808, *Construction Authority in the Event of a Declaration of War or National Emergency*

10 U.S.C. 2853, *Authorized Cost Variations*

10 U.S.C. 2854, *Restoration or Replacement of Damaged or Destroyed Facilities*

10 U.S.C. 2865, *Energy Savings at Military Installations*

10 U.S.C. Chapter 169, Subchapter I, *Military Construction*

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33 U.S.C. 1251, *Clean Water Act*

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42 U.S.C. 6901, *Resource Conservation and Recovery Act*

42 U.S.C. 7491, *Clean Air Act*

10 CFR 435, Energy Conservation Voluntary Performance Standards for New Buildings

40 CFR 280.10, *Underground Storage Tanks*

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AFEPPM 96-4, *Investment Opportunities for Energy and Water Conservation Projects*

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AFI 32-1021, *Planning and Programming of Facility Construction Projects*

AFI 32-1022, *Planning and Programming Nonappropriated Fund Facility Construction Projects*

AFI 32-1024, *Standard Facility Requirements*

AFI 32-1026, *Planning and Design of Airfields*

AFI 32-1032, *Planning and Programming Real Property Maintenance Projects Using Appropriated Funds (APF)*

AFI 32-1068, *Heating Systems and Unfired Pressure Vessels*

AFI 32-6002, *Family Housing Planning, Programming, Design, and Construction*

AFI 32-7040, *Air Quality Compliance*

AFI 32-7044, *Storage Tank Compliance*

AFI 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning*

AFI 32-7061, *The Environmental Impact Analysis Process*

AFI 32-7062, *Air Force Comprehensive Planning*

AFI 32-7063, *Air Installation Compatible Use Zone Program*

AFI 32-7064, *Integrated Natural Resources Management*

AFI 32-7065, *Cultural Resources Management*

AFI 32-9001, *Acquisition of Real Property*

AFI 33-103, *C4 Systems Requirements Development and Processing*

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AFR 86-1, *Programming Civil Engineer Resources, Appropriated Fund Resources*

AFR 86-2, *Standard Facility Requirements*

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USAF Real Property Inventory Detail Sheet

Abbreviations and Acronyms

A-E—Architect-Engineer

AAFES—Army and Air Force Exchange Service

AAFPG—Automated Air Force Pricing Guide

ABES—Amended Budget Estimate Submittals

AC—Acreage

AF—Air Force

AFCESA—Air Force Civil Engineering Support Agency

AFI—Air Force Instruction

AFM—Air Force Manual

AFMC—Air Force Material Command

AFR—Air Force Regulation

AFSA—Air Force Safety Agency

AICUZ—Air Installation Compatible Use Zone

ANG—Air National Guard

APF—Appropriated Fund

BAQ—Basic Allowance for Quarters

BCE—Base Civil Engineer

BCP—Base Comprehensive Plan

BES—Budget Estimate Submittals

CATM—Combat Arms Training and Maintenance

CBRA—Coastal Resources Barrier Act

CCMAS—Construction Cost Management Analysis System

CDIP—Combined Defense Improvement Projects

CFA—Commander's Facility Assessment

CGF—Cost Growth Factor

CM—Current Mission

COMUSJAPAN—US Command in Japan

CONUS—Continental United States

CPTED—Crime Prevention Through Environmental Design

CY—Calendar Year

D3 Sheet—Deficiency Detail Data Sheet

DAR—Defense Access Roads

DASD/PSF&E—Office of the Deputy Assistant Secretary/Personnel Support, Families and Education

DBOF—Defense Business Operation Fund

DDESB—Department of Defense Explosive Safety Board

DFSC—Defense Fuels Supply Center

DI—Design Instructions

DLA—Defense Logistics Agency

DoD—Department of Defense

DoDDS—Department of Defense Dependents Schools

DPG—Defense Planning Guidance

EA—Economic Analysis

ECIP—Energy Conservation Investment Program

EIAP—Environmental Impact Analysis Process

EM—Environmental Management

EMCS—Energy Management and Control System

FAA—Federal Aviation Administration

FB—Facilities Board

FEMP—Federal Energy Management Program

FH—Family Housing

FM—Financial Management

FMABB—Financial Management Analysis Bulletin Board

FY—Fiscal Year

FYDP—Future Year Defense Plan

GSA—General Services Administration

HAC—House Appropriations Committee

HNFCP—Host Nation Funded Construction Program

HNSC—House National Security Committee

HQ AFCEE—Air Force Center for Environmental Excellence

HQ AFRES/CE—Civil Engineer, Headquarters, Air Force Reserve Force

HQ USAF/CE—Headquarters, the United States Air Force, Civil Engineer

HQ USAF/CEC—Headquarters, the United States Air Force, Directorate of Engineering

HQ USAF/CEH—United States Air Force, Directorate of Housing

HQ USAF/CEV—United States Air Force, Environmental

HQ USAF/SGSFW—Air Force Medical Support Agency, Health Facilities Division, Programs Branch

HVAC—Heating, Ventilation, and Air Conditioning

IRP—Installation Restoration Program

JFAI—Joint Formal Acceptance Inspection

JFIP—Japanese Facility Improvement Program

LS—Lump Sum

M&R—Maintenance and Repair

M-CACES—Microcomputer-Aided Cost Engineering System

MAJCOM—Major Command

MILCON—Military Construction

MND—Ministry of National Defense

MTMC—Military Traffic Management Command

MWR—Morale, Welfare, and Recreation

NAF—Nonappropriated Fund

NDI—Non-destructive Inspection

NM—New Mission

NPV—Net Present Value

O&M—Operation and Maintenance

OASD (HA)—Office of the Assistant Secretary of Defense for Health Affairs

OASD/ES—Office of the Assistant Secretary of Defense for Economic Security

OMB—Office of Management and Budget

OPR—Office of Primary Responsibility

OSD—Office of the Secretary of Defense

OSH—Occupational Safety and Health

OSI—Office of Special Investigations

PA—Programmed Amount

PACAF—Pacific Air Force

PACES—Parametric Cost Engineering System

PB—President's Budget

PBD—Program Budget Decision

PCMS—Project Contract Management System

PD—Project Definition

PDC—Programming, Design and Construction

PDM—Program Decision Memorandum

PE—Program Element

PEM—Program Element Monitor

PI—Planning Instructions

PIF—Productivity Investment Fund

PMP—Project Management Plan

PN—Persons

POL—Petroleum, Oil, or Lubricants

POM—Program Objective Memorandum

PPBS—Planning, Programming, and Budgeting System

PSD—Private Sector Development

PW—Prewired Workstation

RAC—Risk Assessment Codes

RACER—Remedial Action Cost Engineering and Requirements System

RD—Requirements Document

RDT&E—Research, Development, Test and Evaluation

REPR—Real Estate Planning Report

RI/FS—Remedial Investigation/Feasibility Studies

ROK—Republic of Korea

ROKFC—Republic of Korea Funded Construction Program

RPIE—Real Property Installed Equipment

RPMA—Real Property Maintenance Account

SAC—Senate Appropriations Committee

SAF—Secretary of the Air Force

SAF/AFREA—Air Force Real Estate Agency

SAF/FMB—Deputy Assistant Secretary of the Air Force (Budget)

SAF/MII—Deputy Assistant Secretary of the Air Force (Installation)

SASC—Senate Armed Services Committee

SECDEF—Secretary of Defense

SGSFW—Air Force Medical Support Agency Health Facilities Division, Programs Branch

SHPO—State Historic Preservation Office

SIOH—Supervision, Inspection and Overhead

SM—Square Meters

STEM—Systems Telecommunications Engineering Manager

TERP—Terminal Instrument Procedures

TOA—Total Obligation Amount

UM—Unit of Measure

UPB—Unit Price Book

UPS—Uninterruptible Power Supply

USAFE—United States Air Force in Europe

USCINCPAC—US Commander in Chief, Pacific Command

USFK—United States Forces Korea

UST—Underground Storage Tanks

VHA—Variable Housing Allowance

WIMS—Work Information Management System

WRM—War Reserve Material

Attachment 2
SAMPLE DD FORMS 1391 FOR MILCON PROJECTS

Figure A2.1. Sample DD Forms 1391.

1. COMPONENT	FY 1998 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
AIR FORCE		

3. INSTALLATION AND LOCATION	4. PROJECT TITLE
FAIRCHILD AIR FORCE BASE, WASHINGTON	KC-135 SQUADRON OPERATIONS/ AIRCRAFT MAINTENANCE UNIT

5. PROGRAM ELEMENT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST ($000)
4.12.18	141-753	GJKZ010005	7,400

9. COST ESTIMATE

ITEM	U/M	QUANTITY	UNIT COST	COST ($000)
KC-135 SQUADRON OPERATIONS/AIRCRAFT MAINTENANCE UNIT	SM	3,800	1,500	5,700
SUPPORTING FACILITIES				935
UTILITIES	LS			(325)
PAVEMENTS	LS			(325)
SITE IMPROVEMENTS	LS			(175)
ELEVATOR	EA	1	110,000	(110)
SUBTOTAL				6,635
CONTINGENCY (5%)				332
TOTAL CONTRACT COST				6,967
SUPERVISION, INSPECTION AND OVERHEAD (6%)				418
TOTAL REQUEST				7,385
TOTAL REQUEST (ROUNDED)				7,400

10. DESCRIPTION OF PROPOSED CONSTRUCTION: Two-story facility with concrete foundation, masonry walls, structural steel frame, sloping roof system, fire protection system, elevator, parking, and sidewalks. New site work in an undeveloped area includes constructing a new road, extending underground steamlines, site improvements, and necessary support.
Air Conditioning: 300kW.

11. REQUIREMENT: As required.
PROJECT: Construct a KC-135 Squadron Operations/Aircraft Maintenance Unit (Sq. Ops/AMU) facility. (New Mission)
REQUIREMENT: Project provides the 3rd of 5 required Sq Ops/AMUs to house 5 squadrons supporting 59 (48 newly assigned) KC-135s. All 59 KC-135s are already on station. It is required to consolidate Air Mobility operational squadrons by collocating aircraft operators with aircraft maintainers. The consolidation relocates flyers and maintainers out of undersized and dispersed facilities into a functional and adequately sized structure. Space is required for Ops/AMU management support, briefing/debriefing, flight planning, training and testing, flying/ground safety, tool rooms, bench stock, mobility office, technical order library, standardization/evaluation, life support, locker rooms, and scheduling. In addition, an elevator is required to comply with the Americans with Disabilities Act of 1990. This consolidation is consistent with the Air Mobility Command initiative to bring the Sq Ops/AMU facilities up to minimum Air Force standards. These efficiencies are essential to maintain mission tasking rates in the Air Mobility Command.
CURRENT SITUATION: Squadron operations and the aircraft maintenance units are dispersed among five severely undersized facilities. The physical separation creates fragmented lines of communications and authority. Aircrews and maintenance personnel must spend many hours away from their duty location in an effort to obtain parts, organizational and mobility equipment, and required training. The existing maintenance facilities were originally constructed in the mid 1950s. These facilities are inadequately sized and not properly configured to house the unified squadrons supporting the

DD Form 1391, DEC 76 **Previous Editions May Be Used Internally Until Exhausted** **Page No.**
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Figure A2.1. Continued.

1. COMPONENT AIR FORCE	FY 1994 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
3. INSTALLATION AND LOCATION FAIRCHILD AIR FORCE BASE, WASHINGTON		
4. PROJECT TITLE KC-135 SQUADRON OPERATIONS/AIRCRAFT MAINTENANCE UNIT	5. PROJECT NUMBER GJKZ010005	

newly realigned KC-135s. All existing facilities will be reused to support other more appropriate requirements to include the interim requirement for the fourth and fifth Sq Ops/AMU programmed in FY99 and FY00.

IMPACT IF NOT PROVIDED: Operations, maintenance, and support personnel will remain in severely undersized and physically separated buildings. The consolidated squadrons will never develop the cohesiveness necessary to become an efficient and effective operational squadron, essential to fulfill the wartime taskings of the Global Reach Mission. Essential squadron operations and logistic functions will continue to require additional work-around that will degrade full implementation of the KC-135 beddown and mission performance.

ADDITIONAL: There is no criteria/scope for this project in Part II of the Military Handbook 1190, *Facility Planning and Design Guide*. However, this project does meet the criteria/scope specified in Air Force Handbook 32-1084, *Air Force Standard Facility Requirements.* A preliminary analysis of reasonable options for accomplishing this project (status quo, addition/alteration, and new construction) was done. It indicates new construction is the only option that will meet operational requirements. In light of this, a full economic analysis was not performed. A certificate of exception has been prepared.

BASE CIVIL ENGINEER: LTC CLIFF C. PETTER, (509)247-2291.

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Figure A2.1. Continued.

1. COMPONENT	FY 1994 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
AIR FORCE		

3. INSTALLATION AND LOCATION

FAIRCHILD AIR FORCE BASE, WASHINGTON

4. PROJECT TITLE	5. PROJECT NUMBER
KC-135 SQUADRON OPERATIONS/AIRCRAFT MAINTENANCE UNIT	GJKZ010005

12. SUPPLEMENTAL DATA:

a. Estimated Design Data:

1. Status:	
a. Date design started	96 JUN 15
b. Parametric cost estimates used to develop costs	Y
c. Percent complete as of Jan 97	35%
d. Date 35% designed	96 DEC 20
e. Date design complete	97 SEP 10
2. Basis:	
a. Standard or definitive design	NO
b. Where design was most recently used	N/A
3. Total Cost (c) = (a) + (b) or (d) + (e)	($000)
a. Production of plans and specifications	440
b. All other design costs	210
c. Total	650
d. Contract	510
e. In-house	140
4. Construction start	98 JAN

b. Equipment associated with this project will be provided from other appropriations: N/A

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Figure A2.1. Continued.

1. COMPONENT	FY 1996 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
AIR FORCE		

3. INSTALLATION AND LOCATION	4. PROJECT TITLE
ROYAL AIR FORCE LAKENHEATH, UNITED KINGDOM	DORMITORIES

5. PROGRAM ELEMENT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST ($000)
2.75.96	721-312	MSET953011	11,200

9. COST ESTIMATE

ITEM	U/M	QUANTITY	UNIT COST	COST ($000)
DORMITORIES (152 PN)	SM	5,000	1,700	8,500
SUPPORTING FACILITIES				1,895
UTILITIES	LS			(775)
PAVEMENTS	LS			(625)
SITE IMPROVEMENTS	LS			(230)
DEMOLITION ASBESTOS REMOVAL/DISPOSAL	SM	2,650	100	(265)
SUBTOTAL				10,395
CONTINGENCY (5%)				520
TOTAL CONTRACT COST				10,915
SUPERVISION, INSPECTION, AND OVERHEAD (2.5%)				273
TOTAL REQUEST				11,188
TOTAL REQUEST (ROUNDED)				11,200
FCF BUDGET RATE USED: POUND 0.65				

10. DESCRIPTION OF PROPOSED CONSTRUCTION: Two, three-story facilities with reinforced concrete foundation and floor slabs, masonry walls and pitched roof. Includes room-bath/kitchen-room modules, lounge, and laundry and storage rooms. Project also includes all utilities, site improvements, demolition and asbestos removal/disposal, and all supporting facilities.
Air Conditioning: 190 kW. Grade Mix: 152 E1-E4.
Maximum Utilization: 152 Personnel

11. REQUIREMENT: 1,388 PN ADEQUATE: 484 PN SUBSTANDARD: 418 PN
PROJECT: Construct two dormitories. (Current Mission)
REQUIREMENT: This is a Level 1 Commander's Facility Assessment requirement. A major Air Force objective is to provide unaccompanied enlisted personnel with housing conducive to their proper rest, relaxation, and personal well-being. Properly designed and furnished quarters providing some degree of individual privacy are essential to the successful accomplishment of the increasingly complicated and important jobs these people must perform.
CURRENT SITUATION: There are currently not enough adequate dormitories to accommodate the unaccompanied enlisted personnel at RAF Lakenheath. Approximately 330 E1-E4 unaccompanied enlisted personnel are forced to live off base in expensive private housing and away from vital base services. Additionally, 11 of 14 existing dormitories are substandard with central gang latrines, insufficient laundry rooms, and inadequate recreational and storage space. They have inadequate heat controls, insufficient insulation, and interior noise attenuation. Maintenance and repair costs are disproportionately large compared to modern facilities. Heating costs are exorbitant due to antiquated individual heating controls. Occupants regulate heating and ventilation by opening and closing windows throughout the seasons. Since the runway is only 1,800 feet from the existing dormitory, and the flight path is even closer, dormitory occupants are distressed by the high noise levels. Normal conversation and sleep patterns are impossible with open windows (a necessity in summer as there is no air conditioning).

Figure A2.1. Continued.

1. COMPONENT	FY 1996 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
AIR FORCE		

3. INSTALLATION AND LOCATION

ROYAL AIR FORCE LAKENHEATH, UNITED KINGDOM

4. PROJECT TITLE	7. PROJECT NUMBER
DORMITORIES	MSET953011

The unaccompanied enlisted personnel of RAF Lakenheath have only two options: to live in substandard dormitories or in expensive off-base quarters. This project allows the elimination of two gang latrine dormitories (53 PN total) from the installation's inventory. A separate O&M project will convert the vacated dormitories to other uses. Additionally, one substandard gang latrine dormitory (69 PN) will be demolished as part of this project.

IMPACT IF NOT PROVIDED: Unaccompanied enlisted personnel will continue to be forced to live off-base in expensive private housing, away from vital base services, and burdened with additional transportation costs and commute time. Additionally, substandard living conditions on base will persist, degrading morale, productivity, and career satisfaction for unaccompanied enlisted personnel. The dormitories will require a disproportionate amount of maintenance and repair funds to ensure the infrastructure remains operative. Heating costs will be excessive, due to inadequate heating controls and insulation. High noise levels will continue to cause occupants great distress during night flying exercises.

ADDITIONAL: This project is not eligible for NATO funding. This project meets the criteria/scope specified in the new uniform barracks standards established by OSD. An economic analysis has been prepared comparing the alternatives of new construction, revitalization, leasing, and status quo operation. Based on the net present values and benefits of the respective alternatives, new construction was found to be the most cost efficient over the life of the project.

BASE CIVIL ENGINEER: MAJ ZANDER, 011-44-638-52-2100.

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Figure A2.1. Continued.

1. COMPONENT	FY 1994 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
AIR FORCE		

3. INSTALLATION AND LOCATION

ROYAL AIR FORCE LAKENHEATH, UNTIED KINGDOM

4. PROJECT TITLE	5. PROJECT NUMBER
DORMITORIES	MSET953011

12. SUPPLEMENTAL DATA:

a. Estimated Design Data:

1. Status:	
a. Date design started	96 APR 01
b. Parametric Cost Estimates used to develop costs	Y
c. Percent complete as of Jan 97	35%
d. Date 35% designed	97 JAN 01
e. Date design complete	97 SEP 30
2. Basis:	
a. Standard or definitive design	NO
b. Where design was most recently used	N/A
3. Total Cost (c) = (a) + (b) or (d) + (e)	($000)
a. Production of plans and specifications	492
b. All other design costs	492
c. Total	984
d. Contract	984
e. In-house	
4. Construction start	98 JAN

b. Equipment associated with this project will be provided from other appropriations: N/A

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